REPORT RESUMES

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UNDERSTANDING THE FOURTH GRADE SLUMP IN CREATIVE THINKING.
FINAL REPORT.
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STUDIES OF CREATIVITY AND OF PSYCHOLOGICAL DISTURBANCES IN CHILDREN HAVE SUGGESTED THE PRESENCE OF SLUMPS (OR INVERSIONS) WHICH MAY BE CORRELATED WITH DEVELOPMENTAL TRANSITIONS. THE MOST NOTABLE OF THESE OCCURS AT ABOUT THE FOURTH GRADE AND IS THE OBJECT OF THIS STUDY. THREE SETS OF INVESTIGATIONS WERE UNDERTAKEN--(1) A STUDY OF CREATIVE DEVELOPMENT IN 7 CULTURES, (2) A STUDY OF THE DEVELOPMENT OF CONFORMITY TENDENCIES, AND (3) LONGITUDINAL STUDIES OF CREATIVE DEVELOPMENT. THE 7 CULTURES SELECTED WERE (1) UNITED STATES, DOMINANT, ADVANTAGED, (2) UNITED STATES, SEGREGATED, NEGRO, (3) WESTERN AUSTRALIA, (4) WESTERN SAMOA, (5) WEST GERMANY, (6) NORWAY, AND (7) INDIA. THE BASIC DATA WERE OBTAINED FROM A BATTERY OF VERBAL AND NONVERBAL TESTS GIVEN TO THE CHILDREN AND WERE SUPPLEMENTED WITH INFORMATION FROM TEACHERS ABOUT THEIR TEACHING PRACTICES AND THEIR CONCEPTS OF AN "IDEAL PUPIL." SAMPLE SIZES FOR EACH CULTURE RANGED FROM 500 TO 1000 CHILDREN COVERING GRADES 1 THROUGH 6. THE CONFORMITY TENDENCIES WERE EXPLORED IN A SERIES OF 6 STUDIES, EACH INVOLVING FROM 150 TO 500 U.S. ADVANTAGED-CULTURE CHILDREN IN GRADES 2 THROUGH 6. THE LONGITUDINAL STUDY WAS BASED ON A SAMPLE OF 100 U.S. ADVANTAGED-CULTURE CHILDREN WHOSE PERFORMANCES IN THE THIRD, FOURTH, AND FIFTH GRADES WERE COMPARED. THE INTERCULTURAL STUDY FOUND THAT DISCONTINUITIES IN DEVELOPMENT OCCUR IN MOST CULTURES AND CONCLUDED THAT THERE IS EVIDENCE TO SUGGEST THAT THEY ARE ASSOCIATED WITH THE IMPOSITION OF ADDITIONAL SOCIAL DEMANDS. THE TEACHERS' RESPONSES ON AN IDEAL PUPIL CHECKLIST PROVED ABLE, WHEN COMPARED WITH THOSE OF AN EXPERT PANEL ASKED TO DETERMINE THE CHARACTERISTICS OF A CREATIVE CHILD, TO PREDICT THE RELATIVE ACHIEVEMENTS OF THE DIFFERENT CULTURES' CHILDREN IN CREATIVITY. THE CONFORMITY STUDIES REVEALED AN INCREASED TENDENCY FOR CHILDREN TO CONSULT WITH THEIR PEERS AT ABOUT THE FOURTH GRADE, AND THE LONGITUDINAL STUDY CONFIRMED THE EXISTENCE OF THE SLUMP IN INDIVIDUALS. (DR)

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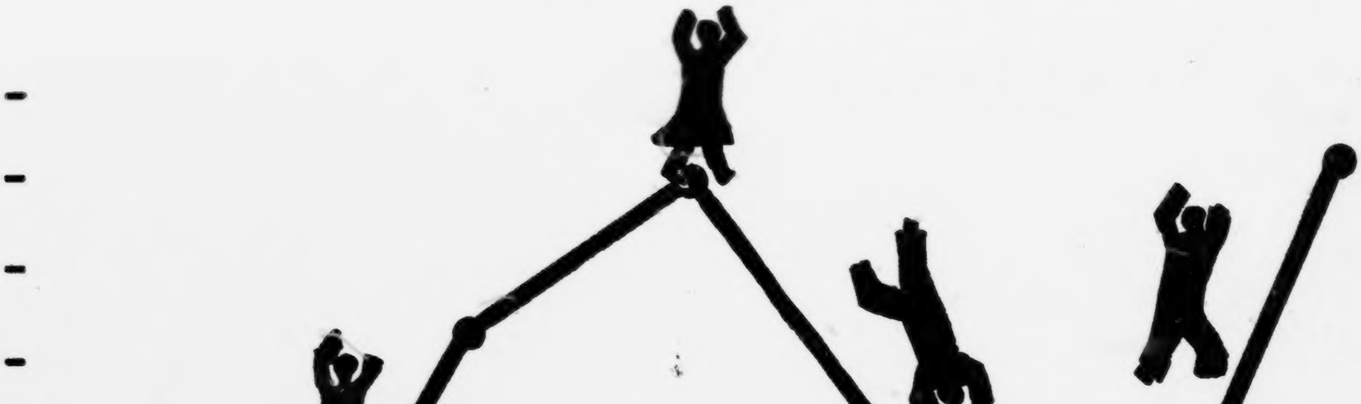
Cooperative Research Project No. 994
Contract No. SAE-8995

Understanding the Fourth Grade Slump In Creative Thinking

E. Paul Torrance



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UNDERSTANDING THE FOURTH GRADE SLUMP IN CREATIVE THINKING

December 1967

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E. Paul Torrance

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The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

UNIVERSITY OF MINNESOTA
Minneapolis, Minnesota

and

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University of Georgia
E. Paul Torrance

PREFACE

The project described in this report consists of three sets of rather complex studies, each employing rather different sets of methods and procedures and each investigating a different aspect of the problem of understanding the fourth grade slump in creative thinking. Thus, it seems necessary to present the report in three separate parts, each having its own introduction, survey of the literature, procedures, results, discussion, and conclusions.

Part I will describe a series of cross cultural studies of creative development. By studies of creative development in an advantaged subculture in the United States (a suburban, all white, school in the Minneapolis, Minnesota, area), a disadvantaged subculture in the United States (a segregated Negro school in middle Georgia), an almost primitive culture (Western Samoa), two diverse European cultures (Germany and Norway), are underdeveloped and emerging cultures (New Delhi, India), and another English-speaking culture (Australia), an attempt was made to see if the fourth grade slump in creative development exists in other cultures. Studies of these cultures and the subcultures within them were made in an attempt to understand the dynamic factors in culture that affect creative functioning and development.

Part II will describe a set of experiments designed to study the development of conformity tendencies in children. In these studies, an effort was made to examine some of the forces that contribute to the development of a stifling or compulsive type of conformity. It was believed that if these forces become stronger at about the time a child enters fourth grade and become overwhelming, we would gain additional understanding of the basic problem and clues for ameliorating what appear to be some of the ill effects of the fourth grade slump in creative thinking.

Part III will describe a set of longitudinal studies of creative development. In these studies, one in a public, metropolitan school and the other in a laboratory school, children were tested each year by means of the same and alternate forms of tests of creative thinking ability to determine more precisely the extent of the fourth-grade slump and the extent to which there is recovery from it.

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PART I

CROSS-CULTURAL STUDIES OF CREATIVE DEVELOPMENT IN SEVEN SELECTED CULTURES

Chapter 1

THE FOURTH GRADE SLUMP IN CREATIVITY AND THE ISSUES OF CONTINUITY OF DEVELOPMENT

Important in most theories of intellectual and personality development is some conceptualization of "stages" or "phases" of development. In psychoanalytic theory (Bischof, 1964), there are the oral, anal, phallic, and genital stages of development. In Sullivan's interpersonal theory (1953), there are infancy, childhood, the juvenile period, preadolescence, early adolescence, and late adolescence. Piaget's (1926, 1962) conceptualization of mental development identifies the pre-operational, concrete operational, and formal operational stages in thinking. Although most theorists and researchers give approximate ages for the beginning and end of each stage, they are all careful to emphasize that limits cannot be placed on the stages of development, that the stages are ushered in by the onset of certain kinds of behavior or experiences (environmental demands), rather than physical maturation itself. Since most of the environmental demands within a culture or subculture are common predictable ones, the approximations usually work fairly well.

Students of human development have for hundreds of years been divided on the issue as to whether or not it is healthy for development to be continuous or discontinuous in stages. Some theorists find no use for conceptualizations that call for stages of development. While others argue that it is healthy for a society to place new demands and stresses on children at various ages and thus produce discontinuities in development, this group maintains that this is unhealthy. They believe that these stresses, if they are too numerous and/or severe, unduly produce disturbances that result in breakdowns and interfere seriously with healthy mental and personality development and functioning. Among early educators, Pestalozzi and Froebel argued strongly for the concept of continuity of growth. For example, Froebel (1911, p. 27) declared, "It is highly pernicious to consider the stages of human development -- infant, child, boy or girl, youth or maiden, man or woman, old man or matron -- as really distinct, and not, as life shows them, as continuous in themselves, in unbroken transitions." He pointed to a pervasive tendency to accept these stages and writes of "the unspeakable mischief, disturbance, and hindrance in the

development and advancement of the human race, arising from these subdivisions and limitations" (Froebel, 1911, p. 28). He maintained that the child rearing and educational practices associated with the concept of stages of development causes difficulties that are almost impossible to overcome. He believed that each successive stage of development should "spring like a new shoot from a healthy bud."

It is true that cross-sectional, empirical research has revealed age characteristics and has supported the concept of "stages" of development. Since, as Froebel points out, society is thoroughly imbued with this concept and treats children accordingly, such results can be anticipated. Differences have been observed from culture to culture, however. Even in our own dominant culture, some children seem to make the transition from one stage of development to another in an orderly manner with few manifestations of disorganized behavior. In some cultures, almost all children seem to show continuity in mental and personality development, and observers cannot identify the beginning of a new stage of development. Generally, such cultures appear to have few discontinuities; age groups are not segregated in the activities of the community and the school, and children are not confronted suddenly with new demands and expectations.

In relatively discontinuous cultures such as the predominant culture of the United States, each stage of development seems to begin with some kind of crisis or new set of demands for which the child has not been adquately prepared. The severity of the crisis usually depends upon how well the child has been prepared to cope with the new demands, how much support he finds in his struggle to master these new demands, the resources he has for mastering them, and how rigorously and harshly the new demands are enforced. A child may learn to respond constructively to one set of demands and suddenly be faced with new ones. First, there is likely to be disorganization until the child recognizes that old techniques and strategies are no longer appropriate. If the new demands are excessively numerous and/or severe, the disorganization may be severe and the child will be overwhelmed. Usually, adaptation is made to the new requirements and eventually constructive behavior results. Some children, however, are unable to cope constructively with the new demands of a stage of development and turn to delinquency, apathy, or illness.

When my associates and I began studying the development of the creative thinking abilities, it soon became clear that the discontinuities in this kind of development, at least in the dominant culture of the United States, was even more severe than the discontinuities of other kinds of mental development. From our earliest evidence (Torrance, 1962, 1963a), clear periods of decline in creative functioning seemed to occur at about ages 5, 9, 13, and 17. The one occurring at about age nine, or the fourth grade, seemed to be the most acute and accompanied by the greatest amount of personality disturbance, behavior problems, learning difficulties, and the like. I soon found that this phenomenon had been observed by many students of human behavior but that it had remained puzzling.

It seemed reasonable to expect that much behavior that seems puzzling can be understood, predicted, and guided more effectively when examined in terms of the demands and stresses that confront children at different stages of development. The studies described in this report represent a first effort to document the decline in creative functioning that usually occurs at about the time a child enters the fourth grade and to see what occurs in the creative development of children in other cultures.

Documentation of the Fourth Grade Slump

On the basis of a variety of studies reported in other sources (Torrance, 1962, 1963a, 1965a) and data from studies by Andrews (1930) with preschool children, it seems possible to plot a generalized curve of creative development. Such a generalized developmental curve is shown in Figure 1.

It will be noted that beginning at age three there is an increase until a peak is reached at about age 4 years. A drop occurs at about age five at about the time the child enters the kindergarten and is followed by increases in the first, second, and third grades. At about age nine, near the end of the third grade or at the beginning of the fourth grade, there is a rather severe decrement in almost all of the creative thinking abilities. Then comes a period of recovery, especially for girls in the fifth grade. This recovery, however, is largely in fluency and not in originality. The recovery in originality comes largely in the sixth grade. After this, there is another decrease in the seventh grade with recovery in the eighth and continued growth until a peak is reached in the eleventh grade. After this, there is a levelling off or slight drop near the end of the high school period. Although I have not charted carefully the course of development for the remainder of the educational stages, almost no group studied has thus far exceeded the performance of eleventh graders. Studies of the performance of many individuals under many different natural and experimental conditions suggest that decrements continue to occur during other crises or discontinuities

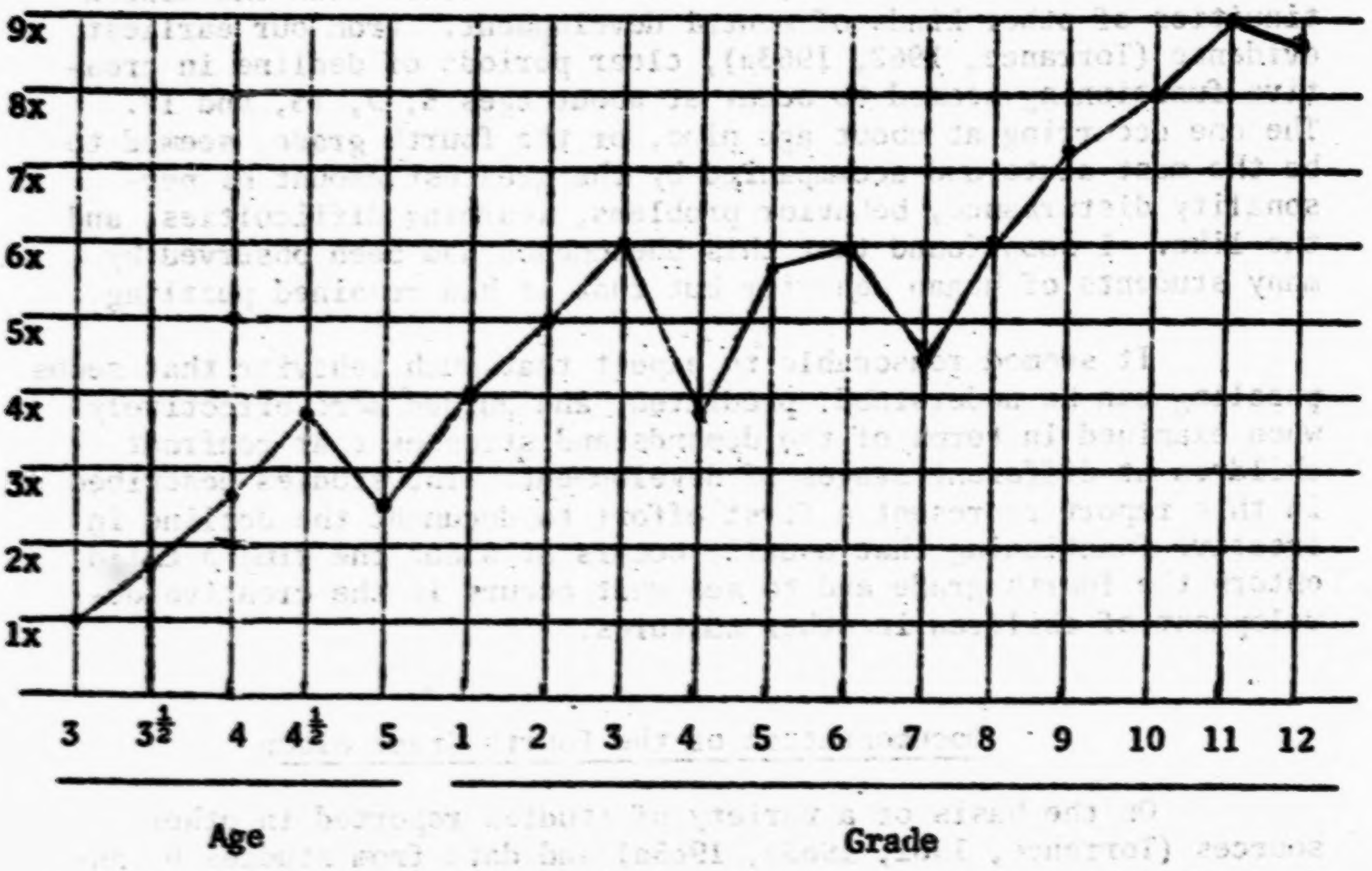


Figure 1. Generalized Developmental Curve of the Creative Thinking Abilities in the Dominant Culture of the United States

throughout the life span.

It is interesting to note that each of the generalized drops occurs at ages at which the transitions from one developmental stage to another begins. Using Harry Stack Sullivan's (1953) conceptualization of the stages of development of interpersonal skills, the drop at about age five occurs with the end of the childhood stage and the beginning of the juvenile stage with its demands for social accommodation and compromise and acceptance of authorities outside the home. The second drop occurs with the onset of the preadolescent stage with its increased need for consensual validation, peer approval, identification with peers of the same sex, and conformity to peer norms. The third occurs at the onset of early adolescence with its increased anxieties, striving for approval of the opposite sex, and the like, all of which restrict many areas of awareness and impose new demands for conformity.

Although many observers have noted a decrease in the creativity of children at about the fourth grade (Moreno, 1946; Eng, 1957; Mearns, 1958; Wilt, 1959 , few quantitative documentations have been offered except by the author. These will be reviewed here in some detail.

The earliest quantitative documentation of a drop in creative functioning in the fourth grade known to the authors was offered by Kirkpatrick in 1900. His data are based on responses to ink blots, and the mean number of names given the ink blots by grade are as follows:

Grade	Mean
1	2.9
2	2.5
3	2.6
4	1.8
5	1.9
6	1.7

Kirkpatrick (1900) contended that the reason children in the fourth, fifth, and sixth grades saw a smaller number of objects in the blots than younger children is that they have become more critical in their sense-perception. They have learned from life's experiences and from training to be more careful in their judgments, Kirkpatrick explained.

Simpson (1922) included grades three through eight in his studies of creative imagination. His test stimulus consisted of several pages of sets of four dots arranged in the form of a square. The subject's task was to add two more dots to each set and then to draw an object that would include all six dots. He counted both the total number of figures produced and the number of creative changes, with the following results:

Grade	Number Pupils	Mean Number Figures	Mean Number Creative Changes
3B	45	21.4	4.4
3A	39	18.4	7.1
4B	38	17.1	4.5
4A	39	18.8	9.7
5B	40	26.6	8.7
5A	37	19.0	9.5
6B	34	17.0	10.9
7B	36	15.7	9.6
7A	30	18.1	9.8
8	31	13.5	6.1

In a study in which children were encouraged to write on their own "outside of the curriculum," Torrance and Hiller (Torrance, 1965) found that fourth grade children produced fewer contributions than did the children in grades three, five, and six. Over a six-week period, the children were asked to contribute one item each week to a magazine. The following data summarize the production record:

Grade	Number Produced	Percent of Possible
3	86	57.3
4	53	35.3
5	62	41.3
6	74	49.3

Evaluations of the stories of these same children (25 in each grade) for originality and interestingness showed a similar but not statistically significant trend, as will be noted from the following summary data:

	Originality		Interest	
Grade	Mean	St. Dev.	Mean	St. Dev.
3	15.1	6.19	5.1	1.53
4	14.5	4.49	4.7	1.65
5	14.6	6.30	5.8	2.05
6	19.4	6.12	7.0	1.13

Axtell (1966) asked gifted sixth grade children to plot the ups and downs of their development of curiosity from the first through the sixth grade. She found that 65 percent of her 272 subjects reported some slump period in their developmental curves. As will be noted from the following data, the greatest frequency of these slumps occurred during the fourth grade:

Grade	Per cent Slumped
1	3
2	17
3	22
4	31
5	19
6	8

Figure 2 presents an interesting contrast between perceptions of a drop in curiosity compared with perceptions of a drop in reading speed by Axtell's subjects.

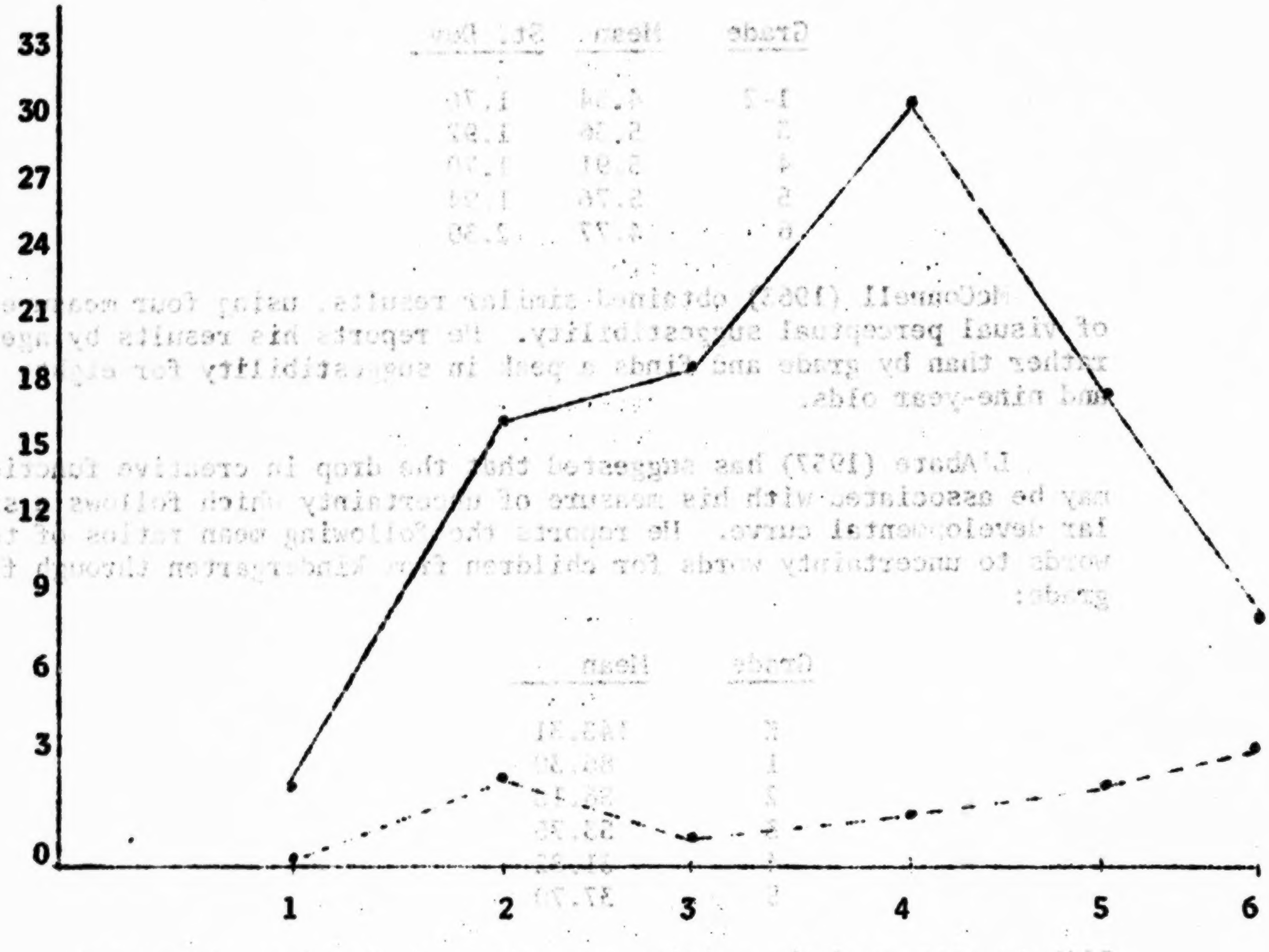


Figure 2. Number of Students Perceiving Drops in Curiosity and Reading Speed at Each Grade Level (Axtell, 1966)

A survey of related research reveals the documentation of other discontinuities in functioning and/or development that parallel the fourth grade slump in creative thinking. Some of these seem to be related logically to the drop in creative functioning and may provide clues to understanding the fourth grade slump in creative thinking. Thus, some of these will be reviewed here.

Barber and Calverly (1963) have associated the concept of imaginative ability with "hypnotic-like" suggestibility. They found that children reached a high point in suggestibility at the fourth-grade level, as will be seen in the following summary of means and standard deviations by grade for eight standardized tests of suggestibility:

Grade	Mean	St. Dev.
1-2	4.54	1.76
3	5.36	1.92
4	5.91	1.70
5	5.76	1.94
6	4.77	2.30

McConnell (1963) obtained similar results, using four measures of visual perceptual suggestibility. He reports his results by age rather than by grade and finds a peak in suggestibility for eight- and nine-year olds.

L'Abate (1957) has suggested that the drop in creative functioning may be associated with his measure of uncertainty which follows a similar developmental curve. He reports the following mean ratios of total words to uncertainty words for children from kindergarten through fifth grade:

Grade	Mean
K	143.31
1	86.30
2	56.18
3	53.75
4	31.82
5	37.70

L'Abate expressed the opinion that the peak found at the fourth grade might be related to what some workers call a "neurotic" period in the life of the growing child.

Barkan (1960) found that most fourth grade children tend to be perfectionistic and easily discouraged by undue adult pressure. This perfectionistic trend at about the beginning of the fourth grade might be advanced as the basis of one explanation of decreased productivity in creative activities among fourth grade children. This decreased productivity and increased concern about evaluation was noted in a study by Weideman (1961), involving the composition of songs. A smaller proportion of the children in the fourth grade submitted songs than in any other grade from first through sixth. Yet the fourth grade enjoyed evaluating the songs created by other classes. Furthermore, their judgment agreed more closely with that of the music experts than did the judgments of classes at other grade levels.

Still another clue may be provided by an early finding by Boland (1910) concerning "risk taking" or "dare taking." She found a drop in willingness to risk or to take a dare at about age nine or during the fourth grade. The age of ten, according to this study, seems to be the age at which dare-taking reaches a climax. It seems to start at age four and goes up with a sudden bounce at about age six, and continues to rise until age eight with girls. The curves for both boys and girls drop at age nine, then take a leap at ten. Physical, moral, and social dares were included in Boland's studies.

As already mentioned, Sullivan's (1953) theory of interpersonal development suggests a number of possible explanations for the fourth grade slump in creative thinking. According to him, the skills in interpersonal relations being acquired at about the time a child enters the fourth grade include: social subordination and accomodation, ostracism, segregation into groups, disparagement, stereotyping, competition and compromise. Sullivan maintained that by this time pressures toward socialization have almost invariably resulted in a careful sorting out of that which is agreed to by authorities. Strong dependence upon consensual validation develops and unusual ideas are laughed at, ridiculed, and punished. The child sees those around him not so much as enemies but as sources of humiliation, anxiety, and punishment with respect to what they communicate and this tends to reduce the freedom and enthusiasm of communication, especially of original ideas.

Lindstrom (1959) has explained the decline that occurs in the creativity of children's art at about age nine in terms of "natural tendencies" and the response of our culture to these tendencies. She explains that in our dominant culture children at about age nine become aggressively competitive within their own groups. Antagonism between boys and girls begins to develop. Children of this age are likely "to be resistant to adult authority, active and adventurous in physical exploits, pitifully eager for the admiration of their peers, and contemptuous of those younger or older than themselves" (Lindstrom, 1959, p. 56). She characterizes them as loyal to the conventional mores and respectful of the taboos of their own group. They suppress rather than acknowledge their personal individuality. She believes that these socially motivated tendencies to conformity to the peer culture effectively inhibit the previous egocentric self-confidence in spontaneous expression and imaginative creation. They can neither achieve the self-confidence of civilized maturity nor enjoy the infantile type. Their earlier originality is now regarded by the children themselves as error, incompetence, and embarrassing naiveté.

Evidences of Educational and Cultural Discontinuities

As I puzzled over the discontinuities in creative development, especially the one that occurs at about the beginning of the fourth grade, many parallel discontinuities in education and society came to my attention.

I have discussed the problem with a number of gifted sixth-garders to see if they are aware of such discontinuities in their development and what hypotheses they have concerning them. I found that many of them are keenly aware of these discontinuities and this is reflected in Axtell's (1966) data, already reported in the foregoing section. They would first point out, "Well, when we went into the fourth grade, we were half-through elementary school, and they expected us to act more grown up." As such a discussion progressed, they pointed out that in the fourth grade they began sitting in orderly rows in the classroom and were required to keep thier feet flat on the floor. Their classroom activities became more organized and formal. They received credit only for what they wrote on paper. The animals in their stories no longer talked. Usually, they had to go to another building, upstairs in a two-story building, or in another wing of the building. They had to do homework and their papers were expected to be neat with no smudges. The subject matter became different; they began having lessons in geography, history, science, language arts, and the like. They began taking part in student government and started serving as monitors of their fellow students' behavior.

In administering the tests of creative thinking, my associates and I were almost immediately impressed by the inhibiting influence of the fourth graders' preoccupation with prevention and the fear of making mental leaps. The problem, "What are all of the possible things Mother Hubbard could have done when she found no food in the cupboard for her dog?" became extremely difficult for fourth grade children. They were so preoccupied with the idea that Old Mother Hubbard should have prevented this predicament that they were unable to think of alternative ways of solving the problem. The fourth graders also wanted to stick close to the stimuli and resisted making mental leaps. In the Product Improvement test, fourth graders usually produced only marginal improvements. Much of their inhibition seemed to stem from the cost that more elaborate improvements would require.

In working with teachers, it is apparent that many of those in the intermediate grades live in quite a different world from their colleagues who teach in the primary grades. Their training has been different; their attitudes about children are different; their methods of instruction are different; even their ways of relating physically to children are different. Many teachers of the intermediate grades admit that they have no idea about what goes on in the third grade. In our research (Torrance, 1965a), we have found that teachers of the intermediate grades say that they talk with children about their creative writing in ways that are different from the ways teachers of the primary grades say that they talk with their pupils. The primary teachers were the more willing to sacrifice preoccupation with correctness and form for creative values.

It is not certain whether parents are aware of the discontinuities in the children's lives, but they are certainly aware of the discontinuities in creative functioning and in the troubling and vexing behavior that seems to occur as a side effect. Some time ago, I (Torrance, 1963a) analyzed a random sample of 100 letters written to me by parents concerning their children who were generally in some kind of trouble, apparently because of their creativity. Figure 3 presents the data derived from this analysis. Peaks at ages five, nine and thirteen will be noted.

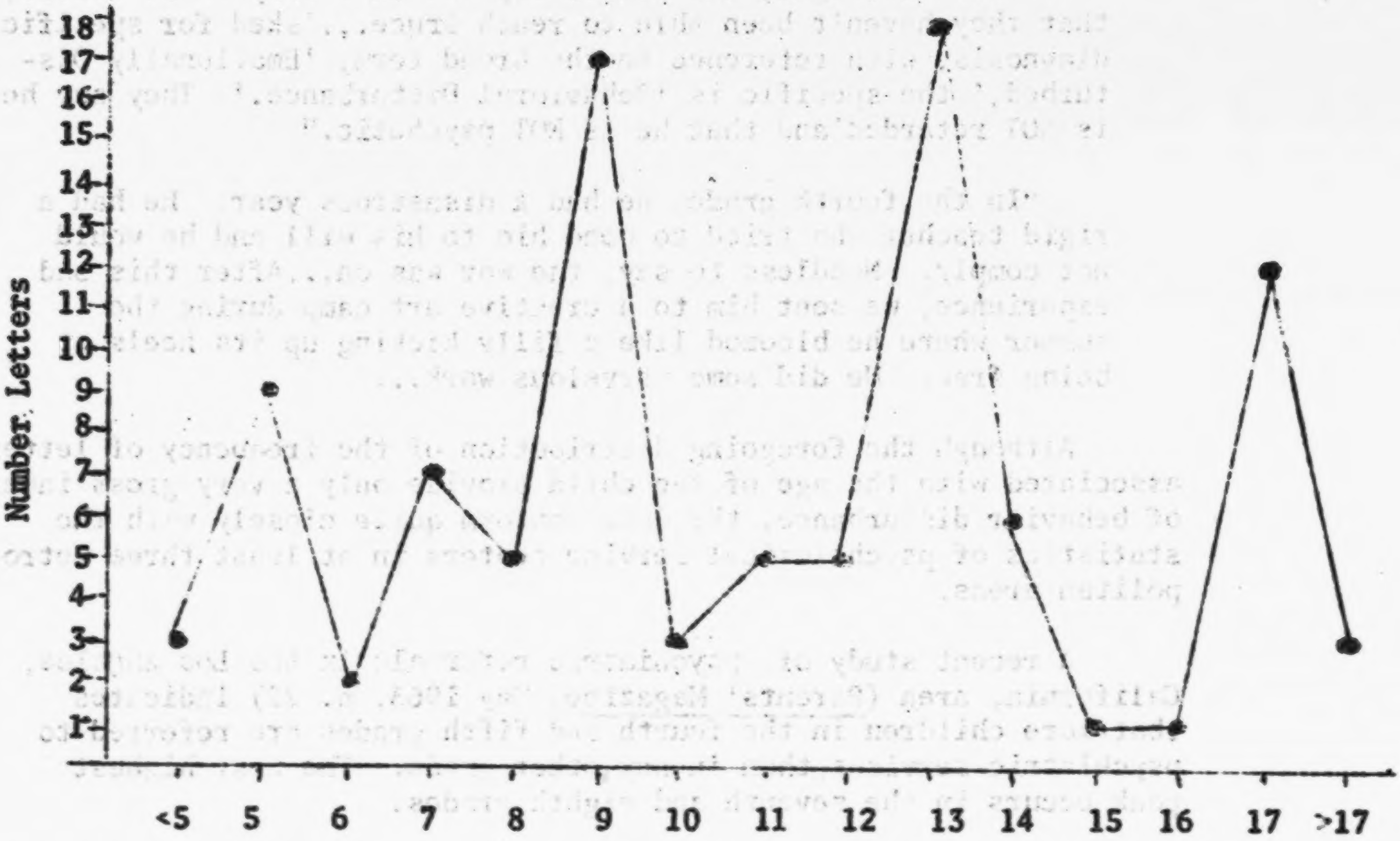


Figure 3. Distribution of 100 Letters from Parents Concerning Creative Children in Difficulty According to Age

It will be noted that the greatest frequency of such letters corresponds with the drops in the developmental curves of the creative thinking abilities. This gives a rather rough indication that many creative children exhibit disturbing behavior at each of these periods.

The following are excerpts from the letters of parents concerning the problems of nine-year olds:

> "Each year since the first grade, the teachers have raved about my son's creative ability, but moaned over his reading development. This year (his fourth in school) has been the first that he hasn't been in the bottom group, but also, since he's learned to conform, his creativity is not as outstanding as formerly. He tries not to be different, he says!"
>
> "When he was about nine, his teacher was an older woman who returned to teaching after eleven years away from the classroom. His demand for attention resulted in his confinement in the hall coat room. He took off. He had his special hiding places around the neighborhood, and the school would phone me to come up. The principal, gym teacher and I would hunt for him. He was usually found fairly easily by me."
>
> "Asked outright, the school replied that they admit defeat, that they haven't been able to reach Bruce...Asked for specific diagnosis, with reference to the broad term, 'Emotionally Disturbed,' the specific is 'Behavioral Disturbance.' They say he is NOT retarded and that he is NOT psychotic."
>
> "In the fourth grade, he had a disastrous year. He had a rigid teacher who tried to bend him to his will and he would not comply. Needless to say, the war was on...After this sad experience, we sent him to a creative art camp during the summer where he bloomed like a filly kicking up its heels at being free. He did some marvelous work..."

Although the foregoing distribution of the frequency of letters associated with the age of the child provide only a very gross index of behavior disturbance, the data conform quite closely with the statistics of psychological service centers in at least three metropolitan areas.

A recent study of psychiatric referrals in the Los Angeles, California, area (Parents' Magazine, May 1963, p. 22) indicates that more children in the fourth and fifth grades are referred to psychiatric services than in any other grade. The next highest peak occurs in the seventh and eighth grades.

I followed up this clue by checking the referral statistics of the Psychoeducational Clinic at the University of Minnesota for 1963-64. At this center, a peak age for referrals is around age five at which time about as many girls as boys are referred. Another peak is reached at about age nine or ten, at which time the referral is much more likely to be a boy than a girl.

Similar statistics were obtained from the Atlanta, Georgia, Psychological Services Department, a part of the public school system. During the first half of the 1966-67 academic year, referrals by grade were as follows:

Grade	Male	Female	Total
K	39	49	88
1	132	98	230
2	126	81	207
3	165	66	231
4	191	97	288
5	177	112	289
6	184	105	289
7	189	173	362

During this same period, the grade level distribution of children served directly by Psychological Services of the Atlanta Public Schools was as follows:

Grade	Total Served
K	12
1	64
2	57
3	97
4	110
5	100
6	81
7	67

In both sets of data it will be observed that upswings in referrals occur in the fourth and fifth grades.

A number of students of human development seem to believe that children at about the time they enter the fourth grade are more vulnerable to the various stresses that they encounter. Wilt (1959, p. 10) asserts that at this stage negative criticism may be "absolutely devastating." She concedes that it is only the unusual child that can withstand the pressure to conformity at this age and that "creativity may all but take a holiday." Ruth Strang (1962, p. 65) has observed that at this stage most children lose their spontaneous fearlessness. She thinks we can expect the developmental curve of creativity to vary with the culture and with the school situation. She points out that in the United States, many teachers of the first three grades tend to be more child-centered than those of subsequent grades. In the fourth grade, the academic requirements become more rigorous and teachers tend to become more critical.

Toynbee (1962), the eminent historian, also points out that the development of abilities can be discouraged easily in a child, because children are even more sensitive to public opinion than adults are. They are even readier than adults "to purchase, at almost any price, the toleration that is an egalitarian society's alluring reward for poor-spirited conformity" (Toynbee, 1962, p. 8). Toynbee believes that this treatment does not extinguish creative abilities but that they take an antisocial turn and that the repressed ability may be diverted from creation to retaliation against the society that has done him an irreparable injustice. He considers the educational tragedy that results an unnecessary one.

Research Questions

At the time these studies were undertaken, the relevant research questions and/or hypotheses could be stated only in general terms. Since that time, some of them have been stated more precisely and have been tested. To introduce these more precise questions and/or hypotheses at this point would be confusing. Instead, let us examine the ones that were asked at the time these studies were undertaken.

Concerning the developmental data already on hand, the following general questions were asked:

1. How does the content and quality of the creative thinking of boys and girls change through the third, fourth, and fifth grades, in their stories, questions, hypotheses, and inventive ideas?

2. To what extent, if any, does various experimental manipulations result in developmental curves different from those found "in nature"?

Concerning the longitudinal data, the following questions were asked:

1. What personality characteristics and life experience variables differentiate children who continue their creative growth during the transition period from the third to the fourth grade from those who experience a marked decrement?

2. What personality characteristics and life experience variables differentiate children who show a recovery in their creative functioning during the fifth and sixth grades from those who fail to show such a recovery?

Concerning the development of conformity to group norms through the early school years, the following questions were posed:

1. What is the nature of the developmental curve throughout the early school years for tendencies to conform to group norms?
2. What is the nature of the peer pressures against non-conforming members throughout the early school years?

Concerning the comparative data from ten selected cultures, the following questions were formulated:

1. How do the developmental curves for selected creative thinking abilities differ among the selected cultures?
2. What educational experiences, if any, are related to the differences in developmental curves for selected creative thinking abilities?

Chapter 2

RESEARCH PROCEDURES AND INSTRUMENTS

The basic plan of the cross-cultural or comparative studies of creative development called for the administration of a battery of creative thinking tests to samples of children from the first through the sixth grade in ten selected cultures.

The cultures were chosen on the basis of known differences in the ways they deal with creative behavior and encourage or discourage the characteristics that seem to be essential to the development of creative personalities. One school was selected to represent the advantaged, dominant white culture of the United States and another to represent a disadvantaged culture in the United States. Western Samoa was chosen as a near-primitive culture and subjects were obtained in both the more urban areas and in isolated villages. New Delhi, India, and Singapore were selected as underdeveloped and emerging cultures with strong traditions. Within each of these cultures, different language and religious groups were included. Germany and Norway were selected as representative of the more advanced European cultures, Germany as one of the more creative cultures of the past and Norway as one of the less creative cultures of bygone days but each with rich traditions. In Germany, one school was located in the inner city and the other in a suburb. In Norway, one school was located in an urban area near Oslo and the other in an isolated mountain and fishing area. Western Australia was chosen as a representative of another relatively new English-speaking culture. One school in a predominantly agricultural area and another in a predominantly industrial area were chosen. Each of the samples and the rationale for its selection will be described in greater detail in later chapters.

In addition to the basic data -- responses to the battery of creative thinking tests by samples of 500 to 1000 children from grades one through six in each of the cultures -- supplementary data were collected to help in understanding and interpreting the performances on the tests of creative thinking. The nature of the data varied from culture to culture due to variations in availability, of data sources, the skills of the cooperating investigators, and the nature of the culture. In most instances, teachers were interviewed concerning their philosophy of education, their classroom practices, and their concepts of the "ideal child" and the characteristics that should be encouraged and discouraged among children. In some instances, children in the fourth, fifth, and sixth grades were asked to write imaginative stories designed to reveal their concepts about how their culture deals with divergent behavior. In most instances, children expressed their occupational aspirations. In a few instances, collections were made of the most popular children's books in the locality. In some instances, the Draw-a-Man Test or the Draw-a-House-Tree Person Test was administered.

Creative Thinking Tests

Three figural, non-verbal and six verbal test tasks were used for assessing the creative thinking abilities. These were test tasks devised by the author. Each of the test tasks selected had already undergone considerable development, had yielded satisfactory evidence of test-retest reliability, validity, and ease of administration. Since that time these tests have undergone further development, have been revised and standardized, and are now available for more general use (Torrance, 1966b). These tests have been described in considerable detail in the norms-technical manual and the test-retest reliability and validity evidence have been presented. Thus, this information will be described quite briefly in this report. Appendix A contains sample copies of the translations and responses from children in each of the ten cultures on the figural tests. Appendix B contains similar information concerning the verbal tests.

Figural Test Tasks

The first figural task is the Picture Construction Test which confronts the subject with a blank sheet of paper and a piece of gummed, colored paper in the shape of a "jelly bean." He is instructed to think of a picture which will make use of this piece of paper as a major feature. He is encouraged to think of "something no one else in the school will think of" and then to add other details which will make it communicate an interesting and exciting story. He is also required to make up a title for the picture.

The second figural task, the Incomplete Figures Test , presents six incompleted figures to which the subject is instructed to add lines, thereby sketching objects or designs. The principle of closure operates to produce obvious responses as a result of primitive tendencies to effect closure in the quickest way possible through the addition of a straight line, circle, or curved line. The subject, of course, is encouraged to produce original, flexible (varied), and elaborate ideas and to compose titles for each picture.

The third figural test task is the Circles Test which consists of a page of 36 one-inch circles. The subject is asked to use the circles as the main part of the objects which they sketch. Fluency, flexibility, originality, and elaboration are encouraged by the instructions and test records are scored for each of these four qualities.

A time-limit of ten minutes was imposed for each task and in testing children in the first three grades, examiners helped the subjects record their titles in individual sessions following the group administration.

Verbal Test Tasks

The first three of the verbal test tasks constitute what I have called the Ask-and-Guess Test. The stimulus materials consisted of prints illustrating the Mother Goose tales of "Tom Piper" and "Ding Dong Bell." (See Plate 11 for photograph of "Ding Dong Bell" print.) The first task calls for the subject to ask questions about the picture that cannot be answered just by looking at the picture. The second task requires the subject to think of possible causes for the action pictured by the print; the third requires him to think of possible outcomes of the pictured action. The first task is designed to reveal the subject's ability to sense what he cannot determine from looking at the picture and to ask questions that will enable him to fill in the gaps in his knowledge. The second and third tasks are designed to reveal his ability to formulate hypotheses concerning cause and effect. The number of relevant responses produced by a subject yields one measure of fluency. The number of shifts in thinking or number of different categories of questions, causes, or consequences gives one measure of flexibility. The statistical infrequency of these questions, causes, or consequences or the extent to which the response represents a mental leap or departure from the obvious and commonplace gives a measure of originality.

In the fourth test task, subjects are asked to produce clever, interesting, and unusual ways of changing a toy stuffed dog or monkey to that it will be more interesting to play with.

The fifth test task, the Unusual Uses Test, calls for interesting and unusual uses of tin cans. The fifth task calls for the subject to think of possible consequences of three different improbable events.

In selecting the test tasks, an effort was made to sample as wide a range of kinds of verbal creative thinking as possible, to make the stimulus materials appealing to all ages, and to choose objects and situations that would be equally familiar or unfamiliar in all cultures. It is difficult to specify how successful my associates and I were in achieving this goal. It is clear, however, that children in all ten of the cultures studied were able to respond creatively to these tasks and reportedly they enjoyed them. Samples of the test records from each culture are presented in Appendix B of this report. Characteristic reactions of the different samples to the tests will be described in subsequent chapters.

Administration of the Tests of Creative Thinking

An effort was made to develop a uniform set of instructions for administering the tests in all ten of the cultures. Almost no deviations from these instructions were reported by the examiners. These instructions are as follows:

Procedures for Administering Creative Thinking Tasks

GENERAL INSTRUCTIONS

Non-Verbal Creative Thinking Tasks, Form NVA, will be administered to all pupils present on the date of testing in Grades 1 to 6 (inclusive).

Thirty minutes of testing time will be needed. Individual interviews will be held with children in the first, second, and third grades in order to identify the symbols they used to communicate their ideas. Verbal Creative Thinking Tasks, Form VA, will be administered in grades III, IV, V and VI. Certain tasks will be omitted in testing third graders, and two tasks will be administered orally to both third and fourth graders. Thirty minutes of testing time will be required for full administration in the fifth and sixth grades. For the administration of the complete battery, two thirty-minute periods or one sixty-minute period may be used.

It is suggested that each group of subjects tested be given a brief orientation, something like the following:

"We are taking part in a study with several other countries to learn more about the way boys and girls in different parts of the world learn to use their imagination and think up new ideas. In a few minutes I will give you some things to do which will give you a chance to use your imagination and show how good you are at thinking up new ideas. Do not worry whether other people will think your ideas are sensible. We want as many new ideas as you can think of. I believe you will enjoy these tasks and I hope that you will think hard and do the very best you can.

Now, I will pass out the booklet which we will use."

PASS OUT FORM NVA, NON-VERBAL CREATIVE THINKING TASKS.

NON-VERBAL TASKS

Write your name in full on the first blank. In the second blank, write today's date which is......On the second line, write your age (nearest birthday), your grade, the name of your school, and the name of your teacher.

(In the first grade, it may be necessary for the examiner to do this in the individual interview. Make sure, however, that each booklet has the child's name on it.)

"Now, read the instructions with me. In this booklet are several interesting things for you to do. All of them will give you a chance to use your imagination to think of ideas. We want you to think of as many ideas as you can in all of them. We also want you to think of interesting and unusual ideas -- ideas that no one else in the class will think of. Keep adding to your ideas and building onto them whenever you can.

"You will be given a time limit on each of these jobs, so don't waste time. Work fast but don't rush. If you run out of ideas before I call time, wait until I tell you before you turn to the next page.

"Do not pay any attention to the rest of this page. Turn to the next page when I give the signal."

"All right, turn now to the next page for the first task."

TASK 1, PICTURE CONSTRUCTION (CURVED SHAPE)

"You have been given a piece of paper in the form of a curved shape. Think of a picture or an object which you can draw with this shape as a part. Lift up this piece of paper and then glue it wherever you want it on the sheet to make your picture. (Show how this is done. Detach shape from page and remount it in another position. This can be done just like a postage stamp.) Now add on lines to complete the picture you had in mind. Try to think up something no one else in the room will think of. Keep adding ideas to your picture, making it as interesting as you can. Use pencil, crayon, or whatever you like to make your drawing. When you finish your drawing, try to think up an interesting name or title for it. Write this on the line at the bottom of the page. (In the first and second grades, do this in the individual interview).

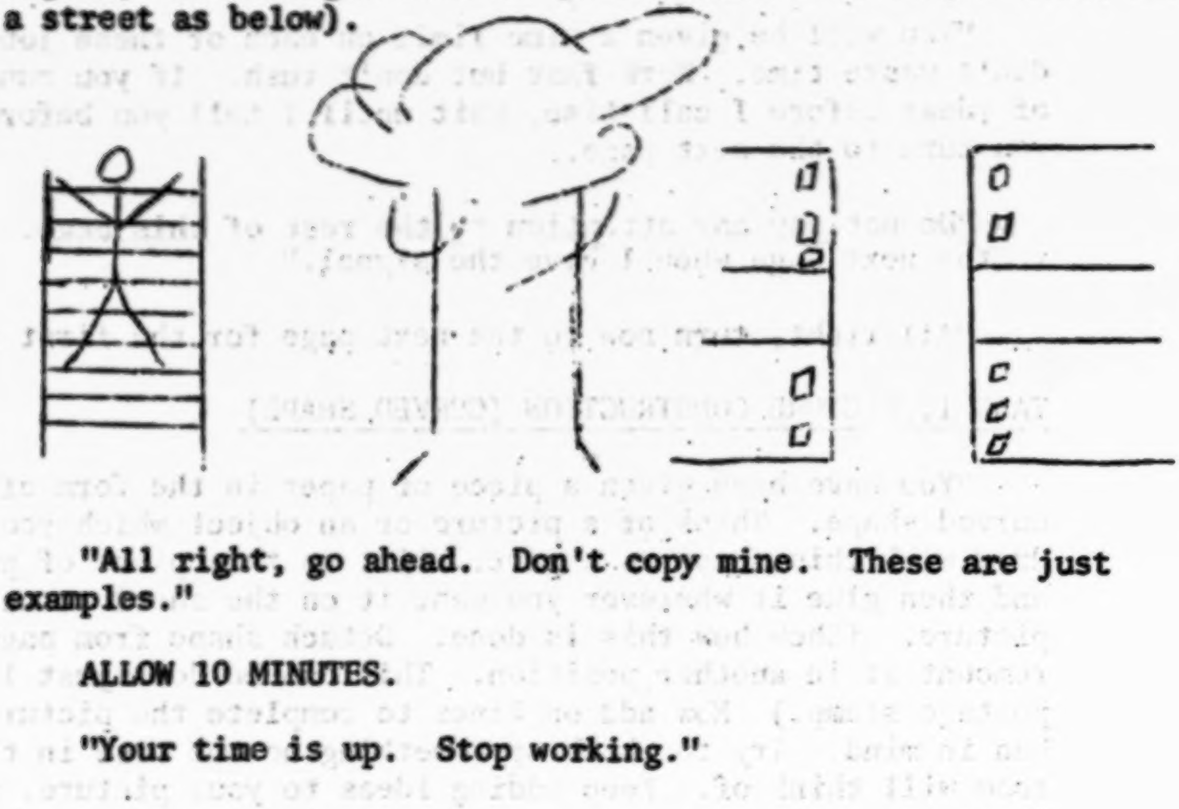
ALLOW 10 MINUTES.

"Now your time is up. Stop working."

TASK 2. INCOMPLETE FIGURES

"Turn to the next page. Your job is to think of pictures you can make from these incomplete figures. Add lines to the six figures on this page to make pictures of objects or scenes. Try to think of something that no one else in the room will think of. Then add as many other things as you can think of to make it more interesting. Don't stop with your first idea. Add other ideas that go with it. Try to think of a good name or title for each picture and write it at the bottom of each picture. (In the first and second grades, do this in the individual interview).

"Now I'll give you three examples for the first incomplete figure, two straight lines. (Demonstrate a ladder, a tree, and a street as below).



"All right, go ahead. Don't copy mine. These are just examples."

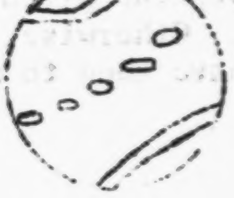
ALLOW 10 MINUTES.

"Your time is up. Stop working."

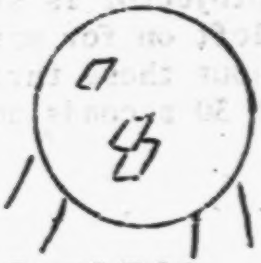
TASK 3. CIRCLES

"Now turn to the next task. This is what we call the Circles Game. In the next ten minutes, see how many objects you can draw which have the circle as a main part. Just add a few lines inside the circles, outside the circles, or both inside and outside the circles. Try to think of unusual and interesting ideas and put in as many different ideas as you can think of. In other words, dress up your ideas by adding to the idea you started with. If it is not easy to tell what your idea is put a name or label below your drawing. (In the first and second grades, do this in the interview later).

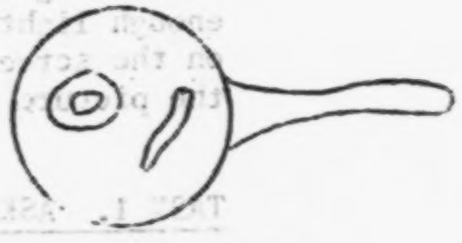
"First, I'll give you three examples." (Demonstrate on the chalk board, the following three examples).



Ball



Round Table



Frying eggs and bacon

ALLOW 10 MINUTES.

"All right, your time is up. Close your booklet and pass it to the front." (Use whatever method seems best in collecting booklets).

.....

VERBAL CREATIVE THINKING TASKS

(Third through Sixth Grade).

"I hope you enjoyed using your imagination and thinking up ideas on the first set of tasks. In the booklet I am going to pass out now, you will have to write out your ideas in words. Don't worry too much about your spelling but try to write so that people can read them.

IN THE THIRD AND FOURTH GRADES ADD: "In this class, you will write out only the first three tasks and we'll let you tell your ideas to us on the next two."

PASS OUT BOOKLETS.

"First, let's write in the information called for on the cover of the booklet. On the first line, write your name and the date which is .... On the second, write your grade, your teacher's name, and your school. On the third line, write what you think you would like to do when you grow up. For example, teach children, run a store, farm, drive a truck, be a lawyer, or whatever you want to be when you grow up. (You might choose occupations common in the local community.)

GIVF TIME FOR COMPLETING THE BLANKS.

"Now, turn to the first task. The first three tasks will give you a chance to use your curiosity and your ability to ask questions and to make guesses about the reasons for things. In all three tasks, you will use the picture which I shall show on the screen. (USE projector to show 2 x 2 slide on screen, back of map, wall, or other light surface. If the light in the projector is strong enough, so that enough light can be left on for writing, keep the picture on the screen throughout these three tasks. Otherwise, show the picture for about 30 seconds and then have them to write).

TASK 1. ASK

"Your first task is to write down all of the questions you can think of about what you see in this picture. Ask questions about any or all parts of the picture and of the things happening. Ask questions which cannot be answered by just looking at the picture. For example, you can tell by looking at the picture that the boy wearing red pants has a patch, but you can't tell who patched his pants or how he tore a hole in his pants to begin with.

"All right, go ahead now and write down all of the questions you can think of. Write as rapidly as you can and don't worry too much about your spelling."

GIVE 5 MINUTES.

TASK 2. GUESS CAUSES

"Your time is up. Turn now to the next page. On this page, we want you to make as many guesses as you can about what went on before what you see in the picture to cause it to happen. What led up to this happening? What made it happen? Make as many guesses as you can about possible causes. None of us knows what caused it to happen, and all you can do is guess, so don't be afraid to guess.

GIVE 5 MINUTES.

"Your time is up. Stop working".

TASK 3. GUESS CONSEQUENCES

"Turn to the next page. Here we want you to list as many possibilities as you can of what might happen after this. What will be the results or consequences of what is going on? What is going to happen next? What is going to happen in the future, even many days or years later, because of what is happening here?"

GIVE 5 MINUTES.

TASK 4. PRODUCT IMPROVEMENT

"Now, let's see how good you are at thinking of ideas for improving something. Look carefully at this toy dog. Your job is to think of as many ways as you can to improve this toy dog so that it will be more fun for children to play with. Think of the most interesting and unusual ways you can. Do not bother about the expense or whether or not it is possible to make the improvement.

"All right, go ahead. Write as rapidly as you can."

ALLOW 5 MINUTES.

TASK 5. UNUSUAL USES

"Now, turn to the next page. Now, think of as many ideas as you can for interesting and unusual uses of the toy dog other than as a plaything. These uses may be as it now is or as it could be changed. For example, you can leave it as it is and use it as a pin cushion. Or, you could make it two or three feet high and strong enough to sit on or even ride."

ALLOW 5 MINUTES.

"Now your time is up. Stop working."

TASK 6. CONSEQUENCES

"Now turn to the last page. On this last task, you have been given a list of three events or conditions which do not exist and probably will never exist. We would like you to try to imagine, however, what would happen IF these conditions were to come to pass. Nobody really knows, so don't be afraid to put down your guesses.

ALLOW 5 MINUTES.

"Your time is up. Close your booklets and pass them to the front".

Special problems of translation will be discussed in the chapters dealing with the specific cultures and subcultures. In all cases, subjects were encouraged to respond in the language in which they felt most comfortable.

Scoring

In most cases scoring was accomplished from the English translations of the test responses. From time to time, the author's scoring concepts have changed. Thus, in the summer of 1967, all tests were completely rescored by the same expert scorer using present concepts of scoring. A separate guide for scoring originality was prepared for each of the cultures. These guides were developed on the basis of tabulations of the frequency of each response in each culture. The same standards of infrequency were used in making decisions concerning the originality weights. There seemed to be no reason why the same procedures for scoring fluency, flexibility, and elaboration could not be applied to the responses from all of the different culture groups.

In brief, the scoring was accomplished as following: Fluency in all cases was simply a count of the number of relevant, scoreable responses made by the subject. Flexibility was simply a count of the number of different categories the responses fell into. The same list of categories was used for all cultures. Originality was obtained by summing the weights assigned primarily on the basis of the statistical infrequency of the response in the particular culture; obvious, irrelevant, and incomprehensible responses were assigned weights of zero. Elaboration was obtained by counting the number of different details used in developing the ideas expressed on the figural test tasks. No attempt was made to score the degree of elaboration in the verbal test tasks. A scoring worksheet was prepared for each test booklet to reduce error and facilitate checking.

The scorer was a highly reliable one and consistently achieved interscorer reliabilities with the author and other scorers in the high .90's.

Reliability and Validity

A large quantity of test-retest reliability and validity data are reported in the norms-technical manual for the Torrance Tests of Creative Thinking (Torrance, 1966a). These data, however, were developed on the basis of work with English-speaking subjects.

Since the reliability and validity data are available in easily obtainable sources and are quite extensive, only a very brief summary seems desirable in this report.

Using alternate forms of the test, test-retest reliabilities ranging from .71 to .93 were obtained for a sample of fourth, fifth, and sixth grade children with tests administered approximately one week apart. In one sample of fifth graders tested approximately nine months apart, reliability coefficients ranging from .60 to .80 were obtained. In another sample of fifth graders tested approximately nine months apart, reliability coefficients ranging from .50 to .87 were obtained. With younger children and for greater lengths of time, the test-retest reliability coefficients are generally somewhat lower.

To assure content validity, the author has tried deliberately to base the test stimuli, the test tasks, instructions, and scoring procedures on the best that we know from research about creativity. The same test tasks, in most instances, have been administered at all educational levels. This has made it possible to determine whether or not children and young people identified as "creative" behave in ways similar to the ways in which eminent creative people of the past behaved when they were children and young people. It also enables us to determine whether or not adults identified today as relatively creative on the basis of outside criteria behave in ways that can be called "creative" on the basis of test scores. In general, the evidence has been rather positive in spite of the complexities introduced by problems of motivation, unfavorable conditions, and the difficulties of conducting well-controlled studies.

In observational studies, we found that children scoring high on tests of creative thinking initiated a larger number of ideas, produced more original ideas, and gave more explanations of the workings of unfamiliar science toys than did their less creative peers when placed in five-person groups. When matched for intelligence, sex, race, and teacher, the most creative children in forty-six classrooms from grades one through six more frequently than their controls had reputations for having wild and fantastic ideas, produced drawings and other products judged to be original, and produced work characterized by humor, playfulness, relative lack of rigidity, and relaxation. Weisberg and Springer (1961) studied a sample of gifted (high IQ) fourth-grade pupils. In comparisen with those who made the lower test scores those who made the higher scores were rated significantly higher on strength of self-image, ease of early recall of life experiences, humor, availability of Oedipal anxiety, and even ego development. On the Rorschach Ink Blots, they showed a tendency toward unconventional responses, unreal percepts, and fanciful and imaginative treatment of the blots. Their performance was described as being both more sensitive and more independent than that of their less creative peers. Among sixth-grade children, Fleming and Weintraub (1962) found significant negative relationships between the measures of originality, fluency, and flexibility and measures of rigidity. Yamamoto (1963) found correlations of around .50 between creativity test scores and a composite measure of originality based on creative writings.

Studies with adults have also been encouraging. In my own graduate classes, I have found rather consistently that those who achieve high scores on the tests of creative thinking develop original ideas in the content area of the course and make more creative applications of knowledge than do their less creative peers. Hansen and I (1966) found that the more creative business education teachers asked more provocative questions, more self-involving questions, and more divergent ones than their less creative peers. Hansen found a number of other significant differentes between her high and low creative teachers, showing that the more creative teachers, as identified by the tests, behaved more creatively in the classroom as judged by detailed classroom observations. Sommers (1961) found that students carefully identified by college industrial arts instructors as creative scored significantly higher on the tests of creative thinking than did their less creative peers. Wallace found that saleswomen ranking in the upper third on sales in a large department store scored significantly higher on tests of creative thinking than did their peers ranking in the lower third. He also found that the more creative women had tended to gravitate to those departments judged by personnel managers as requiring more creativity. Wallace (1964) also found that measures of originality and fluency differentiated the several echelons of personnel in a large national sales organization. The measures of flexibility and elaboration failed to differentiate the highest echelon of sales executives from the lower groups but differentiated within the various lower levels.

Some studies have shown that the measures described herein are positively related to various kinds of school achievement, while others have shown that such measures are unrelated or negatively related to measures of school achievement. A careful examination of these studies suggests that methods of assessing school achievement and methods of instruction may both be important factors in creative growth.

Bentley (1966) found the following set of correlation cofficients for four different measures of achievement in a graduate class of 110 students in educational psychology and a composite measure of creative thinking ability based on a battery of the Torrance tests and the Miller Analogies Test (MAT), an instrument commonly used in graduate school admission procedures:

Achievement Measure	Creativity	MAT
Recognition (multiple-choice test)	.03	.47
Memory (completion and short-answer test)	.11	.41
Productive Thinking (creative applications)	.53	.37
Evaluation and Judgment (decision making)	.38	.27

If one examines closely the research concerning the interaction between different kinds of abilities and different methods of instruction, an interesting picture unfolds. When knowledge is obtained by authority, a measure of mental age or intelligence is a better predictor of achievement than measures of originality, fluency, and the like. When knowledge is obtained in creative ways, for example by discovery or experimentation, the measures of originality, fluency, and the like seem to be better predictors than scores on intelligence tests (Torrance 1965b).

Your Class Questionnaire

The teachers in the Australian, German, Western Samoan, Indian, and Negro (U.S.A.) schools were administered an anthropologically-oriented questionnaire. In all cases the interviews through which these questionnaires were completed were conducted by cooperating investigators who spoke the language of the teacher fluently and had rather wide knowledge of the culture and the local school system.

The questionnaire or interview guide has been reproduced in Appendix C of this report. It contains questions regarding the size of the class, its age and sex composition, seating arrangements, student participation, student interaction, reactions to the test of creative thinking, other testing experiences, pupil drawing and art experiences, the curriculum, grading and promotion policies, the languages of instruction, the educational philosophy of the school as understood by the teacher, the teacher's social and educational background, teaching methods, procedures for meeting individual differences among pupils, discipline procedures, the reward system for pupils, pupil attitudes, and the concepts of the teacher of the ideal pupil.

Other Instruments

A number of other procedures were used in a few of the cultures or subcultures but not others and these will be described in greater detail in the chapters dealing with those particular groups. The U.S.A. Comparison, the U.S.A. Negro, Indian, German, and Singapore groups wrote imaginative stories about animals and people with divergent characteristics. The Western Samoan and Singapore groups were administered the Draw-a-Man Test. Collections of children's stories were obtained for the Australian, Norwegian, and Singaporean cultures. These procedures and the results therefrom will be presented where appropriate.

Chapter 3

CREATIVE DEVELOPMENT IN A SCHOOL REPRESENTING THE DOMINANT, ADVANTAGED CULTURE OF THE UNITED STATES

Many scholars regard the dominant, advantaged culture of the United States as indescribably heterogeneous. Other scholars, however, believe that there is a great deal of commonality in the culture of the United States, especially the dominant, advantaged culture of the United States. They explain that a common tradition, a strong federal government, nationally syndicated newspaper columns, national radio and television networks, textbook publishers with nationwide distribution and sales organizations, and the like are powerful forces in shaping a relatively common culture.

If an investigator uses highly sensitive and precise instruments, he would certainly find many differences among subcultures within the United States. Using such highly sensitive instruments would make it impossible to find a school or community that could be regarded as representative of the dominant, advantaged culture of the United States. A number of less precise instruments, however, were available in the present set of studies to guide the selection of an elementary school to represent the dominant, advantaged culture of the United States. Data had been obtained from teachers and parents in different parts of the United States on the Ideal Pupil Checklist and the Ideal Child Checklist and from children on the Imaginative Story Test. These instruments were designed specifically to reflect the culture of the respondent as the culture mediates his creative development. Data derived from these instruments will be presented in this chapter in an attempt to provide at least some rough indications of the extent to which we may regard the comparison group school chosen as representative of the dominant, advantaged culture of the United States.

The U.S.A. Comparison Group School

Although the school chosen as the U.S.A. Comparison Group School is unusual in a number of respects, the author and his associates (on the basis of their experiences in working with the teachers and pupils of the school for a total of over 20 full days in 1960) agreed that it reflected most of the values, ideals, and educational methods common to other schools in which we had done research. The teachers seemed to encourage and discourage about the same kinds of behavior and the imaginative stories written by the children reflected about the same attitudes concerning divergent behavior as we had found in other schools. Empirical data concerning these latter points will be presented later in this chapter.

The school has an enrollment of approximately 650 pupils and 21 teachers. This included two kindergarten teachers and one teacher of mentally retarded children and they are not included in this study. The school building is a modern, relatively new structure located in a suburb of Minneapolis, Minnesota. The neighborhood in which the school is located was rather heterogeneous in many respects but included no Negroes and almost no families that could be regarded as disadvantaged economically or culturally. The school had a lunch program and a large percentage of the children were transported to and from the school by buses.

The school was somewhat unusual in two respects. First, it was a pleasant and comfortable place in which to work. At the end of a full day of work with almost no breaks, the research team felt relaxed and zestful. The fresh air system of ventilation was quite effective and there was none of the fatigue usually experienced by the research team after two or three hours of work in other schools. Perhaps even more unusual was the smoothness of the order and discipline of the school. Just a few minutes before the dismissal bell, classes would begin filing into the school gymnasium and assembling by buses. Promptly at the sound of the dismissal bell, pupils began loading into the first bus and in less than ten minutes all buses would be loaded and on their way. Discipline did not seem to be oppressive but the children were certainly well behaved, quiet, and orderly in their activities. There were several general purpose rooms in the school building and these were used by the research team for individual testing. Frequently, the research team would observe groups of three to six children working industriously on some project away from the regular class in some of these rooms. While some of the teachers were as conservative as might be found in any school, others characteristically taught in creative ways, especially in such areas as art and creative writing. Certainly none of the teachers could be regarded as "wildly creative" in any observable sense.

Almost all of the teachers of the school held bachelor's degrees from teachers' colleges in the state of Minnesota. Two or three of them had attended the University of Minnesota and two of them had not yet attained bachelor's degrees. The principal of the school had attained a specialist in school administration award from the University of Minnesota and provided excellent administrative support in all of the research team's relationships with the school. The Elementary Superintendent of the school system was especially supportive and was known to have encouraged some of the teachers in the school to teach in more creative ways as an approach to finding greater satisfaction and excitement in their jobs.

Class size ranged from 21 to 29 with a mean of 25.1. The number of boys was about the same as the number of girls in each class. Classes were also quite homogeneous in age and it was a rare child whose age deviated more than six months from the class median age. The mean Intelligence Quotient as measured by the Otis Quick-Scoring Mental Ability Tests was 111 for the school. The Standard Achievement Tests were administered by the principal during the opening weeks of the school term. In general, the children were achieving about two years above grade level according to the national norms on the Stanford tests as will be indicated by the following median scores at each grade level on Total Reading, Language, Total Arithmetic, and Total Battery:

	Median Grade Level			
Grade	Reading	Language	Arithmetic	Battery Total
3	5.0	5.4	4.6	5.0
4	6.5	6.3	5.8	6.2
5	7.3	7.5	6.7	7.1
6	9.0	8.4	7.9	8.6

Some would argue that a school in which the average Intelligent Quotient is 111 and the median level of achievement is about two years above grade level could not be representative of the United States culture. It must be remembered, however, that we are trying to represent the dominant, advantaged culture of the United States. In my experience, this state of affairs is fairly typical of the culture. This was certainly true of several of the suburban school systems in the Metropolitan Twin Cities area.

The Ideal Pupil and Ideal Child Checklists

Cultures may be characterized by the ways in which parents and teachers encourage or discourage certain kinds of behavior among its members. Furthermore, perhaps the most powerful way a culture inhibits or facilitates creative development is the way by which teachers and parents encourage or discourage, reward or punish those characteristics necessary for creative functioning. Usually this encouraging and discouraging process is reflected in what parents and teachers regard as ideal behavior or the kind of person they would like to see a child become.

The Ideal Pupil and Ideal Child Checklists were the basic instruments used in these studies. In developing this instrument, I drew from over fifty empirical studies of the personalities of creative persons compared with similar less creative persons. The first checklist derived from a survey of these studies consisted of

84 characteristics, some of which were overlapping. The list was pared down to sixty characteristics and then "healthy" and "physically strong" were added for "reference" purposes. The same checklist is included in both the Ideal Pupil Checklist and the Ideal Child Checklist; the instructions are also essentially the same. Parents are asked to use their own children as a frame of reference while teachers are asked to keep their pupils in mind in making their ratings of the characteristics. The following instructions are used with the Ideal Pupil Checklist:

> "Check each of the characteristics listed on this page which would describe the kind of person you would like to see the children you teach become. Doublecheck the five characteristics which you consider most important and believe should be especially encouraged. Draw a line through the characteristics which you consider undesirable and which should be discouraged or punished."

This procedure has the very desirable advantage of being easy to administer within a very short period of time under individual- and group-testing conditions. More precise and complex procedures have been devised and used in some of our studies. The above procedure makes the instrument a rather "coarse-grained" one, but a greater degree of precision does not seem to be needed for the purposes of this investigation.

For any given sample or group of subjects rankings can be obtained for each of the characteristics by weighting the responses of each subject as follows:

Two points, each doublecheck	(especially encourage)
One point, each single check	(encourage)
Zero, each unmarked response	(neither encourage or discourage)
Minus one, each "cross out"	(discourage)

Table 1 contains a list of the sixty-two characteristics comprising the checklist with rankings derived from 54 teachers in the area where the comparison group school is located, from 84 parents of the comparison group school, a sample of 1,512 teachers from several parts of the United States, and a sample of 335 parents from several parts of the United States.

Table 1

Rankings of Ideal Child/Pupil Characteristics by Comparison Group Teachers and Parents and Larger U.S.A. Samples of Teachers and Parents

Characteristics	Comparison Group Teachers (N=54)	Comparison Group Parents (N=84)	USA Sample Teachers (N=1512)	USA Sample Parents (N=335)
Adventurous	20.5	30	19	30
Affectionate, loving	41	14	32	12
Altruistic, good of others	48.5	40.5	36	40
Always asking questions	35.5	42	38	41
Attempting difficult jobs	22	25	20	24
A self-starter	8	10	12	17
A good guesser	54	51	53	53
Bashful	56	55	56	55
Becomes preoccupied	36	47	41	45
Considerate of others	8	1	1	1.5
Critical of others	50	57	46	56
Courageous in convictions	26	22	22	20
Courteous	17	12	8	6
Curious	5	8	4	10
Competitive	23	22	34	26
Desires to excel	18	26.5	21	25
Determined	3	5.5	6	7
Disturbs class organiz. and procedures	62	59.5	60	61.5
Domineering	60.5	59.5	61	59

Table 1 continued Characteristics	USA Comparison Teachers	USA Comparison Parents	USA Sample Teachers	USA Sample Parents
Does work on time	14	17	13	14
Emotional	51.5	53	50	51
Emotionally sensitive	29	46	43	48
Energetic	15.5	15	14.5	15
Fault-finding	57.5	58	58	60
Haughty, self-satisfied	60.5	62	62	61.5
Healthy	4	2	7	1.5
Independent in judgment	8	17	16	23
Independent in thinking	1	5.5	2	8
Intuitive	31	34	30	33
Industrious	12.5	9	9	9
Likes to work alone	42	36	44	38
Never bored	39.5	38	40	42
Nonconforming	43.5	48	51	49
Negativistic	57.5	61	59	58
Obedient	29	19.5	25	11
Popular, well-liked by peers	24	30	28	27
Persistent	20.5	22	23	29
Prefers complex tasks	36	35	39	39
Physically strong	36	31	37	28
Quiet	48.5	44	48	46
Receptive to ideas of others	2	32	11	18
Regresses occasionally	53	49	49	50
Reserved	47	40.5	47	43

Table 1 continued Characteristics	USA Comparison Teachers	USA Comparison Parents	USA Sample Teachers	USA Sample Parents
Remembers well	26	13	24	19
Self-confident	12.5	7	10	5
Self-assertive	33.5	39	42	36
Self-sufficient	32	24	31	22
Sense of humor	6	3	3	3
Sense of beauty	11	11	17	13
Sincere	10	4	5	4
Spirited in disagreement	38	45	45	44
Strives for distant goals	19	30	26	32
Stubborn	59	56	57	57
Sophisticated	51.5	50	54	47
Timid	55	54	55	54
Thorough	15.5	18	18	21
Talkative	43.5	52	52	52
Unwilling to accept things on mere say so	29	43	35	37
Visionary	35.5	29	27	34
Versatile, well-rounded	26	26.5	14.5	16
Willing to take risks	33.5	37	29	31
Willing to accept judgment of authorities	39.5	33	33	35

The rank-order coefficient of correlation between the rankings of the comparison group of teachers and the larger group of United States teachers was .96. Similar relationships were found between the comparison group sample of teachers and groups of teachers in specified areas of the United States. For example, a rank-order coefficient of correlation of .94 was obtained with a sample of teachers in Sacramento, California, and one of .98 with a sample of teachers in Georgia. When compared with the Australian sample, the coefficient of correlation was .82; one of .44 was obtained for the comparison group sample compared with the teachers in the Berlin, Germany, schools studied.

When the rankings of the comparison group parents were compared with those of the larger group of parents, a rank-order coefficient of correlation of .96 was obtained.

These findings suggest that there is a great deal of commonality between the values of the comparison group teachers and parents when compared with teachers and parents in other parts of the United States. Since the teachers and parents from other localities were also largely from advantaged groups, the case for considering the comparison group school as at least reasonably representative of the dominant, advantaged culture of the United States is strengthened.

The data presented in Table 1 will become more meaningful even in characterizing the culture of the U.S.A. comparison group when they are contrasted with similar data from the other cultures investigated in these studies.

Data from Imaginative Stories by Children

Data obtained from the analyses of imaginative stories by children in the fourth, fifth, and sixth grades provides a further opportunity to characterize the culture of the comparison group school and at the same time compare it with other groups within the United States. Available from another study (Torrance, 1966c) was a comparison of the stories written by children in the comparison group school with those written by children in a school in Georgia representing the dominant, advantaged culture of that area.

The imaginative stories were written spontaneously within a 20-minute period on a title chosen by the child from a list of ten titles all of which deal with animals or persons having some kind of divergent characteristic, such as a flying monkey, a silent lion, and a woman who can but will not talk. In one of the analyses made of these stories, attention was given to the stress-seeking or stress-avoiding behavior of the hero or main character of the story.

The nature of the stress-seeking efforts reported in the stories of the Minnesota and Georgia comparison groups is summarized in Table 2.

Table 2

Nature of Stress-Seeking Efforts Reported in Imaginative Stories by Pre-adolescents in Two Dominant United States Groups

Nature of Stress-Seeking	Minn. Number	(N=200) Percent	Georgia Number	(N=100) Percent
Spontaneous, in response to challenge	132	66.0	70	70.0
Provoked, in response to threat, coercion, etc.	30	15.0	14	14.0
Unsuccessful attempt to avoid stress	20	10.0	8	8.0
No stress-seeking, or successful stress avoidance	18	9.0	8	8.0

It will be noted that the distribution of responses among the four categories of stress-seeking are almost identical. In both, the predominant response is indicative of a self-acting, spontaneous response to challenge and stress with relatively little stress avoidance. It should be pointed out that these distributions differ significantly from those obtained from disadvantaged groups within the United States and from cultures outside of the United States.

The Minnesota and Georgia comparison groups reported about the same frequency of reversion to a lower level of stress once having encountered stress. Such reversion occurred in 21.5 percent of the Minnesota stories and in 24 percent of the Georgia ones.

The data in Table 3 summarize the analyses regarding the way the environment responds to the stress-seeking efforts of the main characters of the imaginative stories. It will be noted that the anticipation of oppositional forces is about the same in the two groups, but that the Minnesota (comparison group) sample more frequently anticipated supportiveness from the environment than the Georgia group.

Table 3

Response of Environment to Stress-Seeking Efforts Anticipated in Imaginative Stories by Preadolescents in Two Dominant United States Groups

Environmental Response	Minn. (N=200) Number	Percent	Georgia (N=100) Number	Percent
Supportive	72	36.0	22	22.0
Oppositional	48	24.0	25	25.0

In the original study (Torrance, 1966c) it had been concluded that the two groups were so similar in most respects that the results might be pooled to represent the "dominant white culture" of the United States. Again, these data strengthen the case for regarding the comparison school selected as being representative of a dominant, advantaged culture in the United States.

Evidence of the Fourth Grade Slump

Since the study was to be an attempt to understand the fourth grade slump in creative thinking, there was a need to establish the fact that such a phenomenon occurs in the comparison group school. Since I had first observed the fourth grade slump in creative thinking in the Circles Test (Figural) and the Ask-and-Guess Test (Verbal), an examination was made of the results obtained on these two test tasks using the scoring system then in use. The results were confirming, as will be observed from Figures 4, 5, 6, and 7.

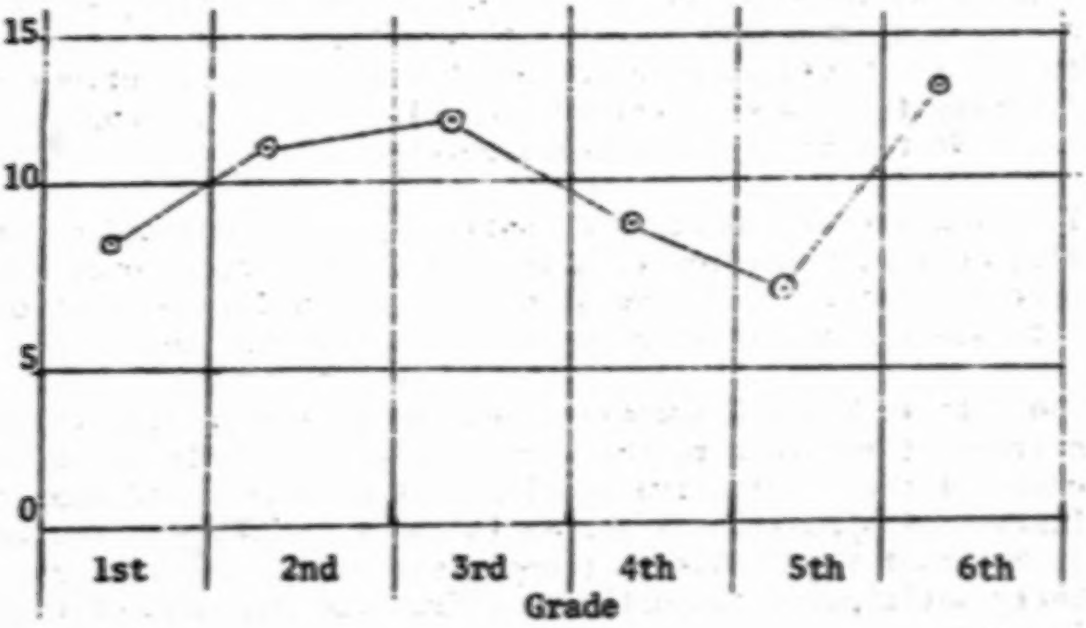


Figure 4. Mean Fluency Scores on Circles Test by Grades in U.S.A. Comparison Group School

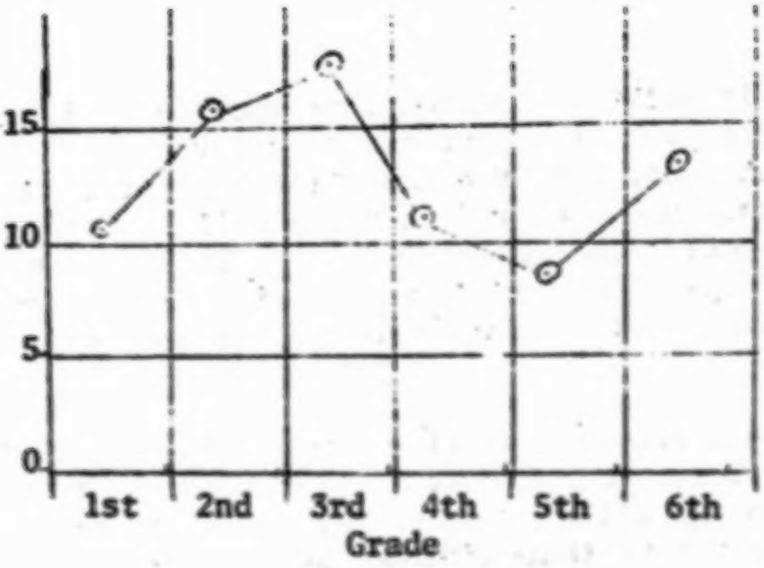


Figure 5. Mean Elaboration Scores on Circles Test by Grades in U.S.A. Comparison Group School

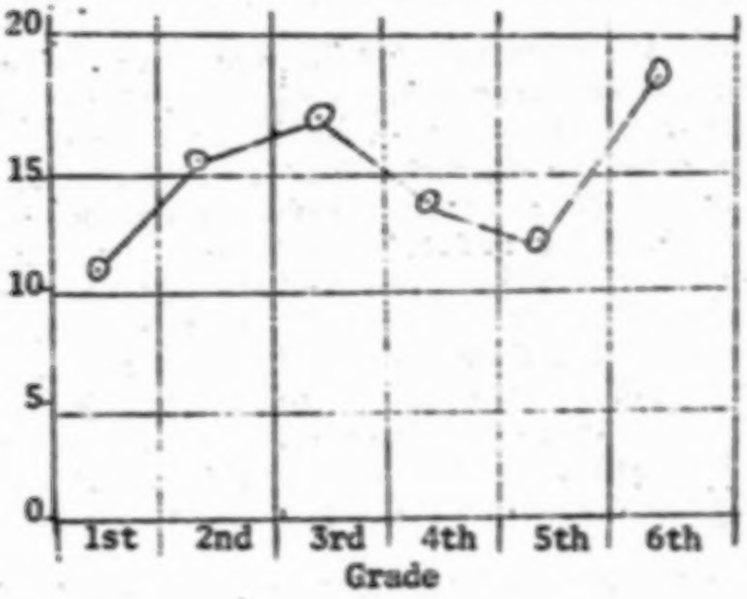


Figure 6. Mean Originality Scores on Circles Test by Grades in U.S.A. Comparison Group School

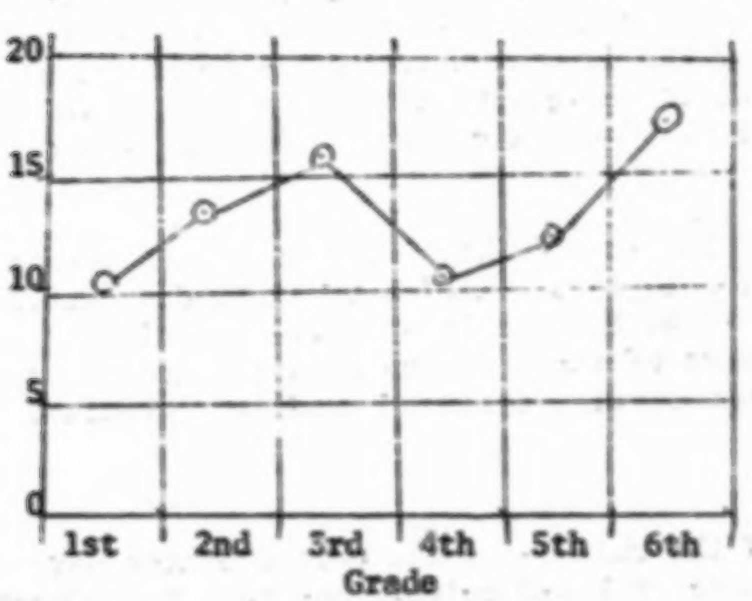


Figure 7. Mean Fluency Scores on Ask-and-Guess Test by Grades in U.S.A. Comparison Group School

In Figure 4, it will be observed that fluency of ideas drops in the fourth grade to about the same level as achieved by the first grade and descends even lower in the fifth. One would not be too concerned about a drop in fluency if it were accompanied by rises in elaboration and/or originality. This does not occur, however, as the drops in elaboration and originality shown in Figures 5 and 6 are about as severe in these respects as in the case of fluency.

Figure 7 shows a somewhat similar picture for a verbal task, the Ask-and-Guess Test. One important difference is that some recovery occurs in the fifth grade and by the sixth grade performance is at a level superior to that attained by the third grade.

Some Characteristics of the Dominant, Advantaged Culture of U.S.A.

Before presenting the creative development data derived from the comparison group school and proceeding with a consideration of the data from other cultures, it seems necessary to summarize briefly our analysis of the relevant characteristics of the dominant, advantaged culture of the United States. Such a review seems necessary in order to understand the reasons for selecting cultures for study and to use the data yielded by these studies for understanding the fourth grade slump in creative thinking. One hypothesis is that it is at about the time a child reaches the fourth grade in this culture that he becomes enculturated. Thus, it seems important to identify those characteristics of the culture that may help explain why this enculturation would result in a drop in creative functioning and in an apparent discontinutiy in creative development.

In attempting to do this, I have accepted the point of view of Spencer (1961) and other anthropologists that there is an "American culture" and that it can be isolated and identified. I have chosen to use the term "dominant, advantaged culture of the United States" instead of simply "American culture" because there is considerable evidence that there are numerous minority and disadvantaged groups in the United States who do not share this culture. I also feel that there is a need to differentiate the culture of the United States from that of Canada, Mexico, the South American countries, and the like.

The characteristics that I shall list have been identified repeatedly by anthropologists, but I have limited my attention to those which appear to me to inhibit creative functioning as I have experimented with ways of facilitating creative growth among children and in administering tests of creative thinking.

Sucess-Orientation

Many critics of the culture of the United States have alleged that we have a success-oriented culture and that our educational system does not prepare children to cope with frustration and failure. All things deterimental to success must be prevented and there are feelings of guilt if this is not achieved. This has emerged repeatedly in testing children at about the fourth grade level, as in the Mother Hubbard Problem to which I have already referred.

Toynbee (1962) argues that this success orientation causes the affluent majority in present-day United States to strive desperately "to arrest the irresistible tide of change." They want to conserve that social and economic system that made possible their comfortable affluence. This causes public opinion to place an enormously high premium on social conformity and standardization.

Comparative educators such as King (1961) contend that the success-orientation that characterizes the United States causes us to be blind to the need for children to learn how to search for knowledge. The goal of education becomes the acquisition of good paying jobs instead of the search for knowledge. He points out that although schools in the United States provide audio-visual aids most generously, there is a great lack of apparatus for children to use in a search for knowledge. On the other hand, there are many materials with which to make things.

Peer-Orientation

Many anthropologists have told us that ours is the mest peer-oriented culture in the world. Evidence of this orientation and its effects upon the thinking of children in the intermediate grades is too obvious and widespread to enumerate. Some of them have been documented in the report of the classroom experiments reported in Rewarding Creative Behavior (Torrance, 1965a).

Unusual or original ideas, outstanding performance, and almost any kind of divergent behaviro become the target of peer pressures to conformity. The British scholar of comparative education, King (1961) observed in schools in the United States "a remarkable concern lest any child be unusual." He commented that this concern especially extends to worry lest any child appear intellectually outstanding, though there were no such concerns about excellence on the "sports field."

Sanctions against Questioning and Exploration

Although we generally recognize the need for children to ask questions and in other ways inquire about the mysteries of their world, most parents and teachers seem to do an outstanding job of squelching such tendencies. My associates and I have from time to time made efforts to study the questions children ask in their classrooms. Generally, it has been impossible to obtain enough data to analyze, since the children were given no opportunities to ask questions. In some cases, we have asked for the cooperation of the teachers in giving time for children to ask questions. The children were so ill-prepared for such an experience that they exhibited what might be regarded as a "state of shock."

Teachers and parents have perfected many devices of ridicule and evasion for putting the curious child in his place. Perhaps this punitive and often hostile behavior is related to the success-orientation of the teacher who is unwilling to admit ignorance on any point.

Divergency Equated with Abnormality

Many teachers and parents still associate any kind of divergent behavior or "differentness" with abnormality. Historically, almost all inventors, composers, creative scientists, and other breakthrough thinkers have been regarded as more or less insane. The imaginative stories concerning animals and persons with divergent characteristics show a preoccupation with the eradication of the divergency rather than a concern for understanding the divergency or for using it constructively.

Even such admired characteristics as honesty, courage, and altruism are regarded as abnormal and indicative of illness if a person exhibits a greater degree of these characteristics than is the norm for his particular group. This is dramatically reflected in the Ideal Pupil and Ideal Child Checklists by teachers and parents in the dominant, advantaged culture of the United States as shown in Table 1.

Work-Play Dichotomy

Another characteristic orientation of United States culture is the dichotomy between work and play. The child is supposed to enjoy play and dislike work and is regarded as unhealthy if he does not. In my opininn, this is one of the reasons why teachers do not provide children with more opportunities for learning in creative ways. Most children enjoy the creative search for knowledge and the practice of new skills in the context of creative ways of learning. This makes many teachers feel guilty and fearful that they will be criticized for making school fun.

Non-Causal Orientation

Although some cultures are far more non-causually oriented than the United States, numerous pieces of evidence seems to indicate that our culture is rather non-causually oriented. Ojemann (1961) has repeatedly presented evidence on this point and has developed in-service education programs for teachers and parents to help them remedy their inability to think causally. Ojemann maintains that our culture teaches the child early to deal with human behavior without trying to understand it and that this tends to be continued into adulthood, even among professional teachers, counselors, and administrators. This non-causal orientation is quite strong in the imaginative stories written by children in the comparison group school.

Other Characteristics

Although most of the other cultural characteristics that have been suggested in the process of our research can be associated with one of the characteristics identified above, several of them need to be mentioned without comment at this time. One of these might be called the "Standardization Orientation." It is of course related to the conformity orientation but is not identical to it. It is also related to an increasing "Urban Orientation," because the emphasis on standardization is more marked in towns and cities than in rural areas. Another might be called the "Limited Family Orientation." In the dominant, advantaged culture of the United States, a child usually has only two parents and is little influenced by the larger family of grandparents, uncles, aunts, and the like -- the extended family is more likely to occur in some of the disadvantaged cultures of the United States than in the dominant, advantaged culture. Finally, there is in the enculturation process in the United States the basic paradox of "training for individual attainment and achievement for the ends of society" (Spencer, 1961, p. 136). Again, this is reflected in the data from the Ideal Child and Ideal Pupil Checklists presented in this chapter -- the extremely high rating given to "considerateness of others" and "courtesy" and the relatively low rating assigned "altruism, working for the good of others" and "courage" and the extremely high rating given "independence in thinking" and the relatively moderate one given "independence in judgment" and "desires to excel."

Creative Development in the Comparison Group School

The means and standard deviations of scores on the three figural tests are reported in Table 2 by grade and sex. It will be observed from these data that a peak is actually reached in the second and third grades with quite a drop in most of the measures in the fourth grade. Some interesting sex differences will be observed here and dealt with more thoroughly later in this report. It will be noted that boys tend to excel girls on the measure of originality at all grade levels and at some levels these differences appear to be considerable. At the same time, it will be noted that the girls tend to excel the boys on the measure of elaboration. These observations are in line with a number of other indications that the dominant, advantaged culture of the United States permits more originality and deviation from behavioral norms among young boys than among girls and that girls are expected to be the elaborators, the detail workers, the embroiderers of our society who make things "fancy." Such "fanciness" is frequently discouraged among boys and called "sissy."

Table 4

Means and Standard Deviations by Grade and Sex on the Figural Tests of Creative Thinking in the U.S.A. Comparison Group

Sex and Grade	Fluency		Flexibility		Originality		Elaboration	
	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
First Grade:								
Boys (N=36)	13.86	4.01	10.78	2.93	13.14	10.11	37.75	14.16
Girls (N=36)	13.75	4.28	11.39	3.36	10.11	5.84	54.08	17.71
Total (N=72)	13.80	4.12	11.08	3.14	11.78	8.31	45.92	17.92
Second Grade:								
Boys (N=58)	17.28	5.27	12.69	3.22	17.41	7.92	56.03	18.25
Girls (N=65)	17.38	5.36	13.26	3.11	12.37	6.81	59.65	17.20
Total (N=123)	17.33	5.27	12.99	3.16	14.75	7.75	57.94	17.72
Third Grade:								
Boys (N=59)	17.14	6.26	12.56	3.63	16.07	8.36	44.25	15.92
Girls (N=72)	17.26	4.28	12.79	2.80	13.62	6.40	53.11	18.01
Total (N=131)	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
Fourth Grade:								
Boys (N=35)	15.71	3.65	12.80	2.84	14.68	7.08	42.23	13.77
Girls (N=36)	15.94	4.77	12.47	3.59	11.44	6.56	51.28	15.43
Total (N=71)	15.83	4.22	12.63	3.22	13.04	6.97	46.82	15.23
Fifth Grade:								
Boys (N=71)	16.35	5.29	13.25	3.97	20.92	9.48	53.22	18.18
Girls (N=73)	17.45	5.68	14.03	4.38	17.71	7.04	58.40	18.31
Total (N=144)	16.91	5.50	13.64	4.19	19.29	8.46	55.85	18.36
Sixth Grade:								
Boys (N=38)	17.21	4.18	14.10	3.41	20.76	7.34	62.58	19.51
Girls (N=35)	17.72	5.62	13.23	3.75	15.43	8.28	69.91	17.91
Total (N=73)	17.45	4.89	13.68	3.58	18.20	8.19	66.10	18.99

The data upon which the developmental curves are based were tested for linearity by the method described by Walker and Lev (1953, pp. 276-278). An *r* was computed between scores and grade levels. An eta^2 was then computed using the sums of squares for treatment, error and total for single classification non-repeated analysis of variance. Finally an F-ratio was computed, which, if significant, indicates that a non-linear technique would account for a greater proportion of the variance than a Pearsonian r. The results of these tests are reported in Table 3. It will be noted that there are significant departures from linearity for males, females, and combined males and females for the measures of originality. The departures from linearity

Table 3

Tests of Linearity of Developmental Curves for Scores on Figural Tests of Creative Thinking in the U.S.A. Comparison Group School

	Males		Females		Combined	
Measure	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	2.27	N.S.	3.31	.05	6.40	.01
Flexibility	0.77	N.S.	2.46	.05	3.20	.05
Originality	3.23	.05	3.53	.01	5.07	.01
Elaboration	10.65	.01	5.07	.01	13.66	.01

Reference: H. M. Walker and J. Lev. Statistical Inference. New York: Holt, Rinehart, and Winston, 1953. Pp. 276-278.

are also statistically significant for females and combined males and females for the measures of fluency and flexibility. It is believed that these data provide defensible evidence of a fourth grade slump, since the tests at all grade levels were administered under the same conditions and as a group test. There is certainly no reason to think that the second and third grades, for example, had any advantage over the fourth grade.

The means and standard deviations by grade and sex on the Ask Questions part of the Ask-and-Guess Test for the comparison group school are reported in Table 4. In these data, we observe a sharp drop between the third and fourth grades. It should be noted, however, that in this school, the Ask-and-Guess Test was administered orally to the first three grades and as a written test in the upper three grades. (In the other cultures the Ask-and-Guess Test was administered orally as in the first three grades.) Research by Sagen and Torrance (1962) indicates that children in the fourth, fifth, and sixth grades are somewhat handicapped by having to write their responses. Even applying the correction suggested by this study, the mean scores of the fourth graders in the present instance do not exceed those of the third graders. Even by the most optimistic estimates, there is a levelling off between the third and fourth grades. At least, there is no evidence of growth.

Table 6

Means and Standard Deviations by Grade and Sex on the Ask Questions Test in the U.S.A. Comparison Group School

Sex and Grade	Fluency Mean	Fluency St.Dev.	Flexibility Mean	Flexibility St.Dev.	Originality Mean	Originality St.Dev.
First Grade:						
Boys (N=36)	6.06	4.54	4.42	3.01	6.22	5.63
Girls(N=36)	7.19	5.54	5.08	2.96	6.28	7.18
Total(N=72)	6.63	5.06	4.75	2.98	6.25	6.40
Second Grade:						
Boys (N=58)	7.07	4.07	5.31	2.73	7.88	5.63
Girls(N=65)	6.19	3.00	4.86	2.33	5.77	5.09
Total(N=122)	6.59	3.52	5.06	2.51	6.71	5.41
Third Grade:						
Boys (N=59)	9.38	4.57	6.54	2.88	10.54	7.12
Girls(N=72)	9.07	4.96	6.62	3.15	10.74	7.93
Total(N=131)	9.22	4.75	6.58	3.01	10.65	7.51
Fourth Grade:						
Boys (N=35)	4.51	2.37	3.71	1.66	4.17	4.05
Girls(N=36)	4.51	2.73	3.89	1.68	3.76	2.56
Total(N=71)	4.51	2.54	3.81	1.66	3.96	3.35
Fifth Grade:						
Boys (N=71)	7.86	3.96	5.30	1.98	5.65	3.83
Girls(N=73)	7.74	3.96	5.78	2.50	5.58	3.99
Total(N=144)	7.80	3.95	5.54	2.27	5.61	3.90
Sixth Grade:						
Boys (N=38)	6.97	2.96	5.53	2.86	6.63	4.22
Girls(N=35)	7.37	3.33	6.00	2.04	5.75	2.49
Total(N=73)	7.16	3.11	5.75	2.50	5.51	3.89

The observed sex differences are not entirely consistent. In the second and third grades, the boys appear to have a slight but fairly consistent advantage over the girls. In the fourth and fifth grades differences practically fade out. In the sixth grade, the girls forge ahead of the boys slightly on Fluency and flexibility but the reverse is true of originality.

Table 5 contains a summary of the means and standard deviations by grade and sex on the Guess Causes part of the Ask-and-Guess Test.

Table 7

Means and Standard Deviations by Grade and Sex on the Guess Causes Test in the U.S.A. Comparison Group School

Sex and Grade	Fluency		Flexibility		Originality	
	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
First Grade:						
Boys (N=36)	2.67	1.82	1.69	0.79	1.42	1.34
Girls(N=36)	3.28	1.92	2.47	1.18	2.97	3.32
Total(N=72)	2.97	1.88	2.08	1.07	2.19	2.63
Second Grade:						
Boys (N=58)	3.02	2.01	2.26	1.27	3.74	3.53
Girls(N=65)	2.77	1.93	2.23	1.34	1.98	2.76
Total(N=123)	2.88	1.96	2.25	1.30	2.77	3.23
Third Grade:						
Boys (N=59)	4.59	1.99	3.14	1.03	5.68	4.37
Girls(N=72)	5.05	2.53	3.81	1.55	5.90	4.38
Total(N=131)	4.83	2.29	3.49	1.37	5.80	4.35
Fourth Grade:						
Boys (N=35)	3.31	2.25	2.69	1.64	3.91	3.07
Girls(N=36)	3.16	1.95	2.32	1.27	4.05	2.84
Total(N=71)	3.24	2.09	2.50	1.46	3.99	2.93
Fifth Grade:						
Boys (N=71)	4.61	3.86	2.94	1.87	4.10	6.63
Girls(N=73)	5.53	4.37	3.42	1.95	5.26	5.11
Total(N=144)	5.08	4.14	3.19	1.92	4.69	4.47
Sixth Grade:						
Boys (N=38)	4.55	1.97	2.68	1.02	5.45	3.34
Girls(N=35)	5.00	3.35	3.00	1.33	5.63	4.57
Total(N=73)	4.77	2.71	2.84	1.18	5.53	3.95

The picture here is about the same as in the case of the Ask Questions part of the test. The evidence for the fourth grade slump, however, is not quite so clear when a correction is made for the fact that the fourth graders had to write their responses. Causal thinking seems to develop rather slowly and there are indications that its development may be fairly continuous throughout this period. Sex differences are small and somewhat inconsistent.

By the fifth and sixth grades, however, the girls seem to have attained a slight advantage over the boys in all of the measures.

Similar data for the Guess Consequences part of the test are presented in Table 6. The evidence for a fourth grade slump is somewhat stronger than in the case of Guess Causes. Even a correction based on the Sagen and Torrance (1962) study would not bring the fourth grade means up to the third grade means. In general, the sex differences do not appear to be very great nor consistent.

Table 8

Means and Standard Deviations by Grade and Sex on the Guess Consequences Test in the U.S.A. Comparison Group School

Sex and	Fluency		Flexibility		Originality	
Grade	Mean	St.Dev.	Mean	St.Dev,	Mean	St.Dev.
First Grade:						
Boys (N=36)	4.14	2.03	3.06	1.39	3.61	3.21
Girls(N=36)	4.28	2.87	2.92	1.81	3.36	3.70
Total(N=72)	4.21	2.47	2.99	1.61	3.49	3.44
Second Grade:						
Boys (N=58)	4.50	3.25	3.12	1.81	4.88	4.52
Girls(N=65)	4.00	2.36	3.04	1.55	3.90	3.52
Total(N=123)	4.22	2.79	3.08	1.66	4.34	4.00
Third Grade:						
Boys (N=59)	6.46	3.24	4.16	1.69	8.94	6.68
Girls(N=72)	5.95	3.49	3.95	2.07	8.48	6.45
Total(N=131)	6.19	3.36	4.05	1.89	8.70	6.52
Fourth Grade:						
Boys (N=35)	4.20	2.35	2.89	1.43	4.29	4.03
Girls(N=36)	3.86	2.12	3.14	1.72	4.95	3.42
Total(N=71)	4,03	2.08	3.01	1.58	4.62	3.72
Fifth Grade:						
Boys (N=71)	5.79	4.18	3.30	2.54	5.54	4.24
Girls(N=73)	6.28	4.08	3.85	1.78	5.95	5.61
Total(N=144)	6.04	41.2	3.58	2.20	5.75	4.97
Sixth Grade:						
Boys (N=38)	5.21	1.77	3.58	1.37	5.82	3.08
Girls(N=35)	5.11	2.49	3.60	1.46	5.71	3.96
Total(N=73)	5.16	2.14	3.59	1.40	5.77	3.51

The Product Improvement Test was not administered to the first, second and third grades of the comparison group school, but data are available from a similar school in the same geographical area. These data were obtained under conditions similar to those that existed where the Product Improvement Test was administered in other cultures except that the time limit was eight minutes in the United States group rather than ten minutes. These results are presented in Table 7 along with the results from the fourth, fifth, and sixth grades as a rough approximation of what we might have expected had the test been administered in the comparison group school.

Table [illegible]

Means and Standard Deviations by Grade and Sex on the Product Improvement Test in the U.S.A. Comparison Group School

Sex and	Fluency		Flexibility		Originality	
Grade	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
First Grade (N=35)	11.21	6.55	4.47	2.04	5.75	4.64
Second Grade (N=38)	10.80	5.56	4.82	2.15	4.64	4.24
Third Grade (N=32)	15.57	7.73	5.58	1.96	7.31	5.67
Fourth Grade:						
Boys (N=35)	7.80	4.59	3.54	1.94	7.31	6.64
Girls (N=36)	7.46	3.80	3.95	1.25	5.70	4.42
Total (N=71)	7.62	4.18	3.75	1.62	6.49	5.63
Fifth Grade:						
Boys (N=71)	8.83	5.39	4.22	1.99	7.87	6.64
Girls (N=73)	9.76	5.06	4.66	1.78	9.39	6.80
Total (N=144)	9.30	5.23	4.45	1.89	8.65	6.79
Sixth Grade:						
Boys (N=38)	9.68	4.06	4.82	1.56	9.18	5.13
Girls (N=35)	11.74	5.68	5.71	1.87	9.03	6.29
Total (N=73)	10.76	4.98	5.25	1.76	9.11	5.76

Again, there are strong indications of the existence of a fourth slump. Although the fourth grade children had to write their own responses, they were allowed ten minutes rather than eight. Even with the correction suggested by the Sagen and Torrance study (1962), the means of the fourth graders would not surpass those of the third graders except possibly in originality.

In summary, it may be said that the existence of the fourth grade slump in creative development in the U.S.A. comparison group school seems reasonably clear. In the case of the figural measures, the evidence is quite clear and there are statistically significant departures from linearity in the developmental curves. Although the issue is somewhat confused in the case of the verbal measures because of the individual administration below the fourth grade and the group administration at and above the fourth grade, the evidence still seems rather strong. Even with rather liberal corrections for equivalency between individual and group administration, the mean scores of the fourth graders do not exceed those of the third graders.

Chapter 4

CREATIVE DEVELOPMENT IN A SEGREGATED NEGRO SCHOOL IN THE SOUTH

Southern Negro Culture

A segregated Negro school in central Georgia was selected to represent a disadvantaged, minority culture of the United States. Many other choices could have been made, but the Southern Negro culture certainly represents one of the largest disadvantaged minorities in the United States. The urban Negro culture is depicted almost daily and hourly on television, newspapers, magazines, and radio. It has also been the subject of much study by social scientists and has been the object of massive educational efforts. Comparatively little attention, however, has been given to the Negro culture of rural and small town U.S.A. where approximately fifty percent of the population is Negro. It was anticipated, however, that the culture of the school selected would reflect most of the characteristics found in other studies of disadvantaged groups in the United States. Since it is to be expected that these characteristics strongly influence the creative development of children reared in a disadvantaged culture, it seems desirable to attempt to summarize these.

It seems to be generally expected that the homes in a disadvantaged culture will have some or all of the following characteristics:

1. Little formal education of parents.
2. Low level employment opportunities.
3. Substandard housing.
4. Unstable family ties.
5. Broken home.
6. Little apparent interest in or motivation for school affairs.
7. Lack of books and/or learning media.

The following characteristics of disadvantaged cultures might be expected to impede creative development:

1. Crowded and/or otherwise inadequate living quarters.
2. Few facilities at home for play.
3. Few books in the home.

4. Language other than standard English spoken in the home.
5. Impoverished language background.
6. Intent to leave school as soon as the law allows.
7. Lack of interest in reading.
8. Rarely uses community facilities such as public library.
9. Preference for comic books as reading material.

A number of recent studies (Frost and Hawkes, 1966; Webster, 1966) had identified a variety of intellectual characteristics that seem to be typical of children reared in disadvantaged cultures. I have compiled the following list of such characteristics that would seem to facilitate certain types of creative development (primarily the non-verbal types) and impede others (primarily those associated with verbal skills):

Anti-intellectual attitude.
Articulate in role playing situation.
Auditory perception impaired.
Decelerating intellectual growth.
Enjoyment of games.
Enjoyment of music.
Enjoyment of sports.
Expressive speech.
Fear of being ridiculed high.
Feeling of alienation.
Feelings of inadequacy strong.
Feeling of being misunderstood.
Few interests.
Formal language deficit.
Gestures expressive.
High degree of familiarity with the concrete.
High responsiveness to kinesthetic stimuli.
Humor.
Inability to abstract.
Inability to classify concrete phenomena.
Inability to conceptualize observations.
Inability to give verbal explanations.
Inability to observe and state sequences of events.
Inability to perceive precise relationships.
Informal language rich in imagery.
Low ability to see cause and effect.

Low responsiveness to oral or written stimuli.
Little or no experience in evaluating past actions.
Little or no experience in setting and proceeding to goals.
Negative self image as a learner and problem solver.
Nonverbal in typical school situations.
Physical style of learning.
Preference for familiar.
Quick and premature closure.
Reading skills poor.
Short attention span in listening to verbal material.
Single-mindedness.
Slow learning but not necessarily dull.
Speeded or timed test performance poor.
Time perspective poor.
"Tune out" capacity high.
True-False test performance best.
Visual perception impaired.
Inability to elaborate.

It has not been within the province of this study to determine the degree to which the characteristics listed above appear in the school selected for study. Nor do we have objective indications of the degree of poverty and cultural disadvantage in which the children live. The scant information available to me, however, led me to expect that the culture of this school is relatively though not extremely disadvantaged and that the characteristics listed above are present to a rather high degree.

Just as the data from the Ideal Pupil Checklist aided us in placing the U.S.A. comparison group school as representative of the disadvantaged Negro culture of the South. Data were obtained from the teachers in the subject school on the checklist and also from a sample of Negro teachers in Mississippi. These results are reported in Table 8 along with the rankings obtained from the 1512 U.S.A. teachers described in the preceding chapter and a special sample of 45 Negro teachers in Mississippi. The method for obtaining the rankings is also described in the preceding chapter.

Table 10

Comparative Rankings on Ideal Pupil Checklist of Teachers in the U.S.A. Negro School, a Sample of Mississippi Negro Teachers, and a Large Sample of U.S.A. (Advantaged) Teachers

Characteristic	Subject Negro Teachers (N=13)	Negro Teachers Mississippi (N=45)	U.S. Teachers (N=1512)
Adventurous	9	15	19
Affectionate, loving	31	29	32
Altruistic, good of others	24	23.5	36
Always asking questions	31	31	38
Attempting difficult jobs	24	10.5	20
Bashful	59.5	56	56
Becomes absorbed	46.5	44	41
Considerate of others	1.5	7	1
Courageous in convictions	9	16	22
Courteous	5	3.5	8
Competitive	24	29	34
Critical of others	44	51.5	46
Curious	9	26	4
Desires to excel	16	3.5	21
Determination	16	10.5	6
Disturbs class organization and procedures	56	61.5	62
Does work on time	24	3.5	13
Domineering	60	59.5	61
Feels strong emotion	58.5	55	50
Emotionally sensitive	35.5	51.5	43
Energetic	24	14	14.5
Fault-finding	61.5	58	58
Good guesser	39.5	46	53
Haughty, self-satisfied	61.5	61.5	62
Healthy	1.5	5.5	7
Independent in judgment	15	26	16
Independent in thinking	50	23.5	2
Industrious	31	21	9
Intuitive	31	35	30
Likes to work alone	53.5	43	44
Negativistic	51	54	59
Never bored	53.5	46	40
Nonconforming	39.5	50	51

Table18 continued

Obedient	5	1.5	25
Persistent	44	38.5	23
Physically strong	16	32	37
Popular, well-liked by peers	42	32	28
Prefers complex tasks	24	32	39
Quiet	51.5	48	48
Receptive to ideas of others	35.5	18.5	11
Regresses occasionally	39.5	46	49
Remembers well	16	1.5	24
Reserved	46.5	40.5	47
Self-assertive	39.5	38.5	42
Self-confident	3	9	10
Self-starting	35.5	26	12
Self-sufficient	49	40.5	34
Sense of beauty	9	21	17
Sense of humor	5	17	3
Sincere	9	12.5	5
Spirited in disagreement	52.5	53	45
Strives for distant goals	16	12.5	26
Stubborn	56	59.5	57
Talkative	44	46	52
Thorough	24	29	18
Timid	56	57	55
Sophisticated	31	42	54
Unwilling to accept say so	35.5	36	35
Versatile, well rounded	16	18.5	14.5
Visionary	24	37	27
Willing to accept judgment of authorities	9	8	33
Willing to take risks	24	34	29

Rank-order coefficients of correlation were computed between the rankings derived from the responses of the teachers of the subject school and those derived from the Mississippi Negro teachers and the relatively large sample of teachers that might be regarded as representing the dominant, advantaged culture of the United States. A coefficient of correlation of .89 was found between the rankings of the teachers of the subject school and the Mississippi Negro teachers and one of .78 was found between the rankings of the teachers of the subject school and the composite rankings of the 1512 U.S.A. teachers.

A rank-order coefficient of correlation of .74 was found between the teachers of the subject school and a sample of 76 white teachers in the same state, whereas one of .98 was found between this sample of white teachers and the larger U.S.A. sample of teachers. These findings support the idea that the school chosen reflects values common to the Negro culture of the South and that this culture does not share in all of the values of the dominant, advantaged culture of the U.S.A., at least in regard to the kinds of behavior that are encouraged and discouraged.

The Subject School

As already indicated, the subject school is located in a moderate sized town in middle Georgia. The town is known as an educational and agricultural center and also has a few small manufacturing plants. Approximately fifty percent of the population of the county is Negro.

The school building is a newly-constructed brick structure, having thirteen classrooms, a library, and a cafetorium. There is a large play area. In a news article appearing in the local county newspaper at the beginning of the school term in 1963, the philosophy of the school was described as follows:

> "The school should serve as a center for improvement of community life by stressing the intellectual, physical, social, ethical, cultural, moral, aesthetic, and spiritual phases of behavior in order that children may adjust to problem situations., The theme is, 'Helping to make our environment healthy, through increased skills.'"

In this same article, the program of the school was described as "full, rich, and varied, designed to help pupils develop the habits, skills, and attitudes which are necessary for the highest type of citizenship." The faculty was described as feeling that one of the most important single aims of the total program is keeping their pupils in school. They stated that they were striving to achieve this goal by employing interesting, wholesome learning situations.

At the time the data were collected, 451 pupils (235 boys and 216 girls) were enrolled in the school. There were two classes at each grade level from one through six and one seventh grade class. The average enrollment per class was 34.6 and ranged from 29 to 39.

The subjects ranged in age, grades one through seven from six to seventeen years. The average age of the first graders at the beginning of the school year was seven years and the average age of the seventh graders was fourteen years. The first graders ranged from six to ten years of age; second graders, from six to twelve years of age; third graders, from seven to fourteen years of age; fourth graders, from eight to fourteen years of age; fifth graders, from nine to fourteen years of age; sixth graders, from ten to seventeen years of age; and seventh graders, from twelve to sixteen years of age.

According to the interviews conducted with each teacher of the school, seating arrangements varied from grade to grade. No age or sex groupings were reported in grades one, two, and four. A distinct grouping by sex was reported in grades three and six and to some extent in grades five and seven.

Despite the relatively large within-class differences in age, students are reported to show no tendency to form cliques on an age basis within classes. This may be explained in part by the teacher's practice of assigning the class seating arrangement. Except in the seventh grade, the seating arrangement is regulated by the teacher and is based on the ability of the students. In the seventh grade, the seating arrangement was described as "indiscriminate."

Only in one of the third grade classes did the teacher report a preference for both boys and girls to work alone. In the remaining classes, no preference for either working alone or in groups was reported. The teachers reported repeatedly that pupils do not form definite age or sex cliques, but that they associate primarily on the basis of "social standing" or ability. Some of the less capable students were reported by their teachers as preferring to work with other pupils who are brighter or more capable scholastically. Generally, however, pupil work groups were formed on the basis of similar levels of ability. The teachers reported rather generally that pupils worked readily together and that conflicts in the classroom were rare.

All teachers reported some tendency for pupils to form groups on the basis of sex, boys preferring boys and girls preferring girls. This tendency reaches its greatest strength (100 percent) at the beginning of the fifth grade.

In all cases, the tests of creative thinking were administered by the curriculum director, assisted by two regular classroom teachers. No deviations from the standard test instructions were reported.

All teachers reported that their pupils had had experience in taking group intelligence tests and standardized reading tests. All except the teacher of the beginning first grade class reported that their pupils had taken standardized achievement tests.

All teachers indicated that their pupils had had experience with multiple-choice, true-false, and completion-of-blanks tests. All teachers from the third grade through the seventh reported that their pupils had had experience with essay tests. One second grade, one third grade, and both fifth and sixth grade teachers indicated that their pupils had been given experiences with creative, multiple-response tests. Timed tests appeared to be relatively rare compared with groups from other cultures, averaging about 3.7 timed tests per class per year.

The most favored method of instruction was definitely the individual recitation and this method of instruction was used in every class almost daily throughout the year. The second most favored method was the group recitation, used on the average about 3.5 times per week in each class. Experiments and demonstrations appeared to be practically unknown.

In all classes, the regular classroom teacher assumed responsibility for art instruction. In some cases, pupils were permitted to choose what they would draw or paint. At other times, the teacher prescribed what should be drawn.

In ten of the thirteen classes, the attitude of the pupils toward the tests of creative thinking was described by the teachers as approving. In one of the third grade classes and in the seventh grade, their attitude was characterized as "neutral"; in the beginning first grade class, attitudes were described as disapproving. Eleven of the thirteen teachers expressed surprise concerning the wide range of individual differences elicited by the tests.

The three figural test tasks (Picture Construction, Incomplete Figures, and Circles) were administered in all classes from the first through the fourth grades. The Ask-and-Guess, Product Improvement, and Unusual Uses test tasks were administered in grades three through seven. Subjects in grades four, five, and six were asked to write imaginative stories concerning either "The Flying Monkey" or "The Lion That Wouldn't Roar." Information was obtained from pupils in grades three through six concerning their occupational aspirations.

Occupational Choices of Pupils in Subject School

It is believed that the occupational choices and aspirations of children tell us a great deal about the culture of which they are a part. Information about the occupational choices and aspirations of children should yield useful clues concerning those areas of experiencing that have been placed off-limits to the children of a particular culture. Children as they approach adolescence appear to become increasingly aware of the precise nature of these taboos or off-limits areas of experience. In another source (Torrance, 1965a), I have shown that the expressed occupational choices or aspirations of children are strongly influenced by a sensitivity to what is permitted and what is taboo in terms of sex roles. It was anticipated that the awareness of off-limits would be even more evident in racial groups, such as Negroes in the South, where social pressures and economic realities impinge upon daily life. Although the present sample is small and is influenced by some rather unique factors, several interesting facts emerge.

Procedure

At the time the verbal tests of creative thinking were administered, pupils in grades three through seven were asked to respond to the question, "What kind of work do you want to do when you grow up?"

Results

The results are presented with the obvious limitations inherent in the smallness of the sample and the choice of a single school. Table 11 presents a summary of the occupational choices expressed by the boys in the subject school along with comparative data obtained from boys in the dominant culture (all white) in grades four through seven.

From these data it is apparent that the range of work perceived to be within their reach by the Negro children in the subject school is rather narrow. If we discount the areas where only single choices appeared, the range is reduced to ten categories of work. By far the most popular category is that of medical doctor. Although the scholastic ability and educational achievement of the subjects may make this choice unrealistic, there is an obvious recognition that the role of the Negro doctor is a respected and accepted one in the community in which the data were obtained. In this particular community, there is a Negro doctor who is greatly admired and respected among adult members of the white community. Such success has already stimulated several Negro youths in the community to begin and complete successfully medical studies.

The second choice in frequency among the boys falls in the area of housing construction. These boys wish to be carpenters, bricklayers, or painters. The distribution of these choices through the grades is uneven, but a marked preference appears in grades five and six, perhaps out of a realistic recognition that these occupations provide good pay and are attainable by Negro youths. Other manual and semi-skilled occupations fairly popular among these Negro boys are: bus and truck drivers, police, and farmers, although the latter category is inflated by a group of five boys in the fifth grade with a perhaps romantic interest in becoming cowboys. A majority of the third grade boys (not shown in Table 11) want to be professional football players, an area in which Negroes can excel. Of the older pupils in the sixth and seventh grades, professional athletics is also a fairly popular choice.

It will be noted that there are certain categories of occupations chosen by whites but not by Negro male pupils. These are air pilot, astronaut, artist, military, veterinarian, and scientist. One Negro boy did, however, express a desire to be a doctor of science or medicine, but by contrast nine percent of the white pupils wished to be scientists. The occupations listed by white boys but not by Negro boys may be interpreted as perceived taboo areas by them. It may also be that the limitations of a small town community reduces the range of choices among the boys in the subject school.

Table 11

Occupational Choices of White vs. Negro Boys in Grades 4 to 7

Occupation	Grade 4		Grade 5		Grade 6		Grade 7		TOTAL	
	%White (N=643)	%Negro (N=18)	%White (N=375)	%Negro (N=34)	%White (N=1146)	%Negro (N=34)	%White (N=221)	%Negro (N=14)	%White (N=2385)	%Negro (N=100)
Medical Doctor	6.1	55.5	10.1	38.1	11.3	11.8	8.6	14.3	9.0	29.9
Professional Athlete	12.9	0.0	8.3	0.0	9.1	5.9	8.1	7.1	9.6	3.2
Housing Construction[a]	2.3	0.0	2.1	14.7	2.1	29.4	2.3	7.1	2.2	12.8
Truck or Bus Driver[b]	3.1	11.1	3.2	2.9	2.2	11.8	2.7	7.1	2.8	8.2
Police[c]	3.3	5.6	5.1	14.7	3.1	11.8	2.4	28.7	3.5	15.2
Teacher	2.3	11.1	1.0	2.9	3.2	8.8	2.3	21.4	2.2	11.1
Farmer	3.7	0.0	9.1	20.5	4.8	0.0	6.8	14.3	6.1	8.7
Entertainer[d]	1.3	0.0	0.8	0.0	1.3	14.7	2.7	0.0	1.5	3.7
Engineer and Auto Mechanic[e]	8.9	5.6	8.6	2.9	11.0	0.0	14.1	0.0	10.6	2.1
Minister	1.6	0.0	2.1	0.0	1.5	0.0	2.3	0.0	1.9	0.0
Lawyer	3.3	0.0	2.7	2.9	4.8	0.0	3.6	0.0	3.6	0.7
Undecided	10.3	0.0	10.1	0.0	10.6	0.0	22.6	0.0	13.4	0.0

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[a] Carpenter only for white boys

[b] No bus, truck only for white boys

[c] Police detective stated by white boys

[d] Actor and musician

[e] Mechanic and engineer

The taboo element, however, is undoubtedly evident. The percentage figures indicate that medicine for the Negro boys is far more attractive than for white boys. The same is true for such occupations as bus or truck driver, police, and teacher through all of the grades and for housing construction occupations in fifth through seventh grades.

Data concerning the occupational choices or aspirations of the girls in the subject school and the sample from the dominant white culture are presented in Table 12.

It will be noted that teaching is an overwhelmingly popular choice among the Negro girls at all grade levels, with nursing emerging as an equally popular choice in the seventh grade. If we combine the few girls who desire to become medical doctors with those who desire to become nurses, teaching is still the most popular vocation except in the seventh grade. It should be noted that nursing has been an acceptable occupation for Negro girls in this community. It is interesting that secretarial aspirations are few, showing a slight increase in the seventh grade. From these data, it appears that the range of work seen as both permissible and attractive by Negro girls is even narrower than that of the boys, only seven effective occupations being chosen if the categories having only one choice are eliminated.

It would appear that the taboo occupations for Negro girls, by contrast with the occupational choices of the comparison group girls are: air hostess, artist, veterinarian, and scientist. It is unlikely that any of the girls in this sample have ever seen any woman in any of these occupations. The failure to choose art occupations is especially striking to me in view of some of the excellent art ability I have seen demonstrated by Negro children in Georgia. Both boys and girls in the subject school are reported by their teachers to conform to fairly stereotyped patterns, the boys drawing cowboy pictures, animals, and automobiles and the girls drawing domestic pictures, dolls, children, and flowers. The teachers reported that the children are sometimes free to draw what they wish but at other times the teacher instructs them what to draw.

Comparing the choices of the girls in the two samples, teaching is the most popular choice in both, but much higher with the Negro girls than with the comparison group girls. Nursing comes second in both groups with the Negro girls having a slightly greater percentage, except in the sixth grade. The comparison

Table 12

Occupational Choices of White vs. Negro Girls in Grades 4 to 7

Occupation	Grade 4		Grade 5		Grade 6		Grade 7		TOTAL	
	%White (N=585)	%Negro (N=27)	%White (N=374)	%Negro (N=33)	%White (N=1079)	%Negro (N=20)	%White (N=252)	%Negro (N=17)	%White (N=2290)	%Negro (N=97)
Nurse	29.6	37.0	27.5	33.3	22.1	10.0	21.0	35.3	25.1	28.9
Doctor	1.0	14.8	3.2	3.0	4.9	0.0	3.6	5.9	3.9	5.9
Teacher	31.5	48.2	32.1	51.6	27.5	65.0	27.4	35.3	29.6	50.0
Housewife	8.5	0.0	6.7	6.1	7.1	15.0	5.6	5.9	7.0	6.7
Secretary	4.1	0.0	8.3	0.0	8.2	5.0	12.3	17.6	8.2	5.6
Entertainer[a]	2.3	0.0	4.5	3.0	3.3	5.0	2.4	0.0	3.1	2.0
Hairdresser	1.2	0.0	0.5	0.0	3.0	0.0	3.0	0.0	1.9	0.0
Undecided	6.8	0.0	6.1	0.0	5.9	0.0	8.3	0.0	6.8	0.0

[a] Actor and musician

group girls appear to be consistently more interested in secretarial work than the Negro girls.

Discussion

Occupational choice may not appear at first sight to be directly related to creative development. Yet a vocational choice in later adolescence is dependent upon both the realities of the economic and social situation primarily at the time of choice and an imaginative awareness of the choices possible. The ambitions of most children are understandably unrealistic and often romantically based, but the oral choices made later may be limited by a lack of imagination, limitations of flexibility and an inability or unwillingness to look beyond the obvious. With greater mobility occupational choices are not limited to those occupations only available in the local community. Yet where whole areas are seen as taboo this may act as a strong inhibiting factor, not only vocationally, but in the wider implications of educational sensitivity.

The evidence presented would seem to support the view that Negro students are much more confined in their choices and are interested, perhaps more than white students, in those occupations offering status within racial limits. The question, how can children be helped both realistically and imaginatively to see vocational possibilities, is a pertinent one; in Negro communities under existing racial hostilities this problem reveals many subtle and complex factors.

The relationship between creative development and vocational choice seems to be an area meriting further detailed research.

Summary

The pupils in the subject school were asked, "What kind of work do you want to do when you grow up?" The vocational choices were rather limited in range for both boys and girls, but noticeable differences between the sexes were to be seen in the grades tested.

Local factors in the community may account for the most popular male choice of medical doctor. The next most popular were skills involved in housing construction and other manual skills. For girls, teaching children is the marked choice of most, with nursing a close second, the strong medical traditions of the area being expressed in this manner by the girls, although a few state medical doctor as their preference. Between them teaching and medicine accounts for 84 per cent of the responses, leaving very few choices to other areas.

Comparisons with a large sample of white students in grades four through seven reveal taboo areas for Negro males to be pilot or astronaut, artist, military, veterinarian, and scientist; for Negro females, they are air hostess, artist, veterinarian and scientist.

The relationship between creative development and vocational choice was discussed and seen as an area worthy of future research.

Southern Negro Culture Revealed in Imaginative Stories

Procedure

All children in grades four, five, and six of the subject school were asked to write imaginative stories either on "The Flying Monkey" or "The Lion Who Couldn't Roar." Analysis and coding of the stories was based upon the assumption that they acted as a form of projective technique, children revealing in fantasy material their perceptions about divergent behavior and how their culture deals with such behavior.

Story Preferences

The two stories of "The Flying Monkey" and "The Lion Who Couldn't Roar" are basically about two differing types of divergent characters. The first is an animal who has gained additional powers, by being able to fly, and the second is an animal whose normal powers are curtailed. It is not surprising, therefore, that most children choose the flying monkey in preference to the roarless lion as their theme for imaginative story writing (129 to 18). The reason for this may be that most of them find greater release from the everyday limitations of childhood by fantasying in a positive sense, rather than fantasying with material which would remind them of their own unused and undeveloped powers.

When we compare the choices of the Negro children in the subject school with other groups, it is found that a much larger and statistically significant proportion choose the Flying Monkey topic. Comparing the total choices in all grades with similar totals from two samples of white children at the same grade levels, we see this marked difference in Table 13.

Table 13

Choice of Imaginative Stories by Three Groups between The Flying Monkey and the Lion Who Couldn't Roar

Cultural Group	Monkey Story	Lion Story	Comparison with Negro Sample		
			Chi-square	d.f.	P
Negro U.S.A. Sample	129	18			
Parochial School (Minn.)	212	142	37.104	1	.001
U.S.A. Comparison Sample	183	155	50.435	1	.001

This significant difference between the Negro and white responses to the choice of story, may be explained by the hypothesis of greater insecurity of the Negro children when facing the possibility of a divergence which is of a negative nature, limiting rather than adding to the powers of the hero. Further data with Negro children in other schools would be useful to test this hypothesis.

Originality of Stories

A marked feature of the stories by the Negro pupils is an impoverishment of style and ideas, the content for most children being brief and rather colorless. A few children seemed to let themselves go, but the general picture is one of hesitation, inhibition and restriction of creative expression in this form of free writing. This may, of course, only reflect the limitations of a formalized mode of education, stemming from a curricular approach of a formal kind. When compared, however, with results in other areas of creative thinking, a total restrictive pattern is evident.

The instructions given for the writing of the imaginative stories were all designed to encourage originality and interest. No ready-made scales for evaluating either of these characteristics could be located. The relevant literature was surveyed in an attempt to determine what characteristics of compositions had been considered in rating them on originality and interest by various groups. These were then listed and nine characteristics for each were selected as being appropriate for relatively objective scoring. Most of the scoring criteria for interest were obtained from the work of Flesch and his associates (1955). The others were gleaned from a variety of sources.

The stories were scored for originality under nine categories, for the presence of each, one point being given. The total possible originality score was therefore nine points. These categories were: picturesqueness, vividness, flavor, personal element, original or surprising solution or ending, original setting or plot, humor, invented words or names, and other unusual twists of style or content.

As an indicator of the impoverished level of the Negro children's stories we note the number of children in each grade who scored zero on originality. These pupils showed none of the qualities in the nine categories of originality listed above.

Table 14

Number of Pupils at Each Grade Level in the Subject Negro School Scoring Zero on Originality

Grade	Number	Originality Zero Scores	Percentage of Pupils
4	44	17	38.64
5	63	13	20.63
6	41	6	14.63
Combined	148	36	24.32

Table 15 shows the mean originality scores by grade for the Negro and U.S.A. Comparison schools. Both Tables 14 and 15 reveal the severe limitations of the Negro pupils. The picture is quite similar when we turn to the quality of interest in the stories.

Table 15

Mean Negro Sample Originality Scores, Compared with Similar Grade Sample Results in the Comparison Group, t-test results

Grade	Group	Number	Means	St. Dev.	P
4	Negro U.S.A. Sample	44	0.89	0.84	<.01
	U.S.A. Comparison Group	81	3.89	1.84	
5	Negro U.S.A. Sample	63	1.52	1.16	<.01
	U.S.A. Comparison Group	187	3.55	1.82	
6	Negro U.S.A. Sample	41	1.61	1.02	<.01
	U.S.A. Comparison Group	92	4.72	1.78	

Interest of Stories

In evaluating the interest of the imaginative stories, the following nine categories were used: conversational tone, naturalness, use of quotations, variety of kinds of sentences used, variety in length of sentence and sentence structure, personal touch, humor, questions and answers, and a portrayal of the feelings of a character. One point was given for the presence of each of these qualities. Zero scores were found for 25 percent of the stories by the children in the subject school. The means and standard deviations of the Negro children and the U.S.A. Comparison sample are presented in Table 16.

Table 16

Means and Standard Deviations of the Interest Scores of the U.S.A. Negro and U.S.A. Comparison Group Samples

Grade	Group	Number	Means	St. Dev.	P
4	U.S.A. Negro Sample	44	1.14	0.86	<.01
	U.S.A. Comparison Group	81	4.96	1.82	
5	U.S.A. Negro Sample	63	1.51	1.06	<.01
	U.S.A. Comparison Group	187	3.74	1.71	
6	U.S.A. Negro Sample	41	1.56	1.32	<.01
	U.S.A. Comparison Group	92	4.91	1.78	

The picture here is similar to that for Originality, with highly significant differences between the Negro and white pupils' scores. Even at sixth grade out of a possible nine total points the mean average score does not reach two points, which reveals an inability to create lively and interesting imaginative stories. Whether this is a general trend in all story writing, or is peculiar to the content of these stories, where the fact of divergency may exert a paralyzing influence of some kind, we cannot say. It does appear to indicate a cultural difference of some kind, whatever the basic cause, which further research with larger samples of Negro children may substantiate. Other analyses of the stories and other features of the test results, however, seem to support this view.

Further analyses of these stories by Goldman and Torrance (1967) revealed that the stories of the Negro children contained only about one half of the number of words of the stories by the children in the U.S.A. comparison group sample. The mean number of words in the fourth grade stories was 62.49; for the fifth grade, the mean was 66.79 and for the sixth grade it was 87.39.

Concepts of Divergent Behavior

Since the stories children were asked to write dealt with animals of divergent characteristics, how the children regarded their divergences is of considerable interest. Cross cultural studies have shown there are differences among cultures in the way in which divergency is tolerated, encouraged or subtly inhibited. Children in the stories are projecting not only their personal but their cultural reactions to these situations.

A coding system was used for scoring the stories in terms of various attitudes and perceptions of divergency. Six areas formed the basis of the analysis and these were:

1. The extent of pressures to conform.

2. The sources of pressures to conform, or to get rid of the divergent behavior.

3. The kinds of pressures experienced by the story character.

4. The effects of the pressures or the consequences on the behavior of the divergent character.

5. Concern expressed about the cause of the divergency.

6. Nature and form of the influences that caused the divergency.

1. Awareness of Conformity Pressures

Only 50 of the 148 (30.5 per cent) stories produced by the children in the Negro sample revealed an awareness of pressures to conform. Compared with samples of white pupils, of comparable grades, there is a reticence to discuss in the stories the fact that pressures are brought to bear by society upon divergent characters.

Table 17

Perception of Pressures to Conform Reported in U.S.A. Negro Sample Compared with Two Dominant Culture U.S.A. Groups and Chi Square Tests

Cultural Group	Number	Perception of Pressure	Comparison with U.S.A. Negro		
			Chi Square	df	p
U.S.A. Negro Sample	148	50			
U.S.A. Comparison	215	112	11.82	1	$<.001$
U.S.A. Small Town Comparison Group	228	153	40.38	1	$<.001$

These results show highly significant differences between the Negro and the white comparison groups. That 69.5 per cent of the Negro children make no mention of the pressures to make the divergent character conform is interesting. In a cross-cultural analysis (Torrance, 1964) between American, English, French, Puerto Rican, Turkish and Greek children, the Greek children rank lowest in this score: but the Negro children come even lower than the Greek children. This strongly evident unwillingness to express or recognize social pressures against divergency may represent a taboo area for most

Negroes. To recognize it or even think about it is perhaps regarded as a dangerous attitude.

2. Sources of Pressure

In determining what or who is the source of pressure upon the monkey or lion to conform, the following eight classifications were used:

a. Self: The child or animal himself determined how to react to the divergency. The divergent animal was the source of pressure to conform.

b. Parents: One or both of them forced him to conform.

c. Peers: Peers influenced him in his decision to conform.

d. Society: Society in general urged upon him or forced him to conform, or he took into consideration the common opinion in order how to decide to behave. This would include police, when they are seen as the agents of society.

e. Education: The pressure of education or educational figures such as teacher, principal, knowledge, books, etc. influenced conforming behavior.

f. Nature: Natural forces, such as physical discomfort, made him conform.

g. Specific person or animal other than parent, peer, teacher, etc. such as doctor, dentist, lawyer, friend, influenced him to reject divergent behavior.

h. No pressure: The subject did not mention any kind of pressure to conform or dealt only with the causes of the divergency.

The results of this analysis are reported in Table 18.

It will be noted that the peer pressures reported by the Negro children were quite infrequent compared with those reported in the comparison groups. The major pressure in the Negro group is to be found in society in general, a pressure not generally expressed by the white pupils. Again the difference between the Negro and

Table 18

Comparison of Negro and U.S.A. Comparison Group in Terms of Perceived Sources of Pressure against Divergent Behavior

	Percents				
Source of Pressure	Negro	Compar. Group	Chi-Square	df	P
Self	8.0	8.9	0.38	1	N.S.
Parents	2.0	0.9	--	1	--
Peers	2.0	36.6	21.56	1	<.001
Society	38.0	4.4	30.81	1	<.001
Education Nature Specific persons	4.0 10.0 36.0 } 50	54.4	--	1	--
Number Score	50	112			

white group is highly significant. We can infer that a strong cultural difference, based upon a different racial grouping, is evidenced here, in that the Negro pupils have to be constantly on the alert for society's expressions of taboo, transmitted through its policemen and other authoritarian figures. In the cross-cultural study, previously mentioned, by comparison the Negro group is the most society-orientated of them all. We have no comparative figures for the "Specific Persons" classification of the comparison group sample, but the Negro children show 36 per cent of their choices in this category as those from whom pressures would come. These are largely authoritarian figures such as teachers and doctors, and we may also be catching a reflection of some of the agents of society perceived by the Negro child.

3. The Kind of Pressures Exerted to Encourage Conformity

In categorizing the kind of pressure made to influence or encourage the divergent character to conform or rid himself of his divergency, the following classifications were used: verbal advice (by the influential character); laughter or ridicule (used as a weapon of disparagement); criticism; social isolation or avoidance; some expression of hostility or threat; coercion, in that force or use of power or authority was used; remedial treatment, medical, psychiatric or educational; questions, asked in such a way as to influence towards conformity; expressions of surprise, puzzlement or curiosity. Several responses were unclassifiable.

The results of the application of this categorization system are presented in Table 19. It will be noted that verbal advice and admonition are completely lacking in the Negro group. Laughter and ridicule are not significantly different between white and Negro groups but criticism and expressions of hostility are. Perhaps the threat of punishment or of dire consequences, seen as expressions of hostility to divergence, is enough pressure for many in a community where such threats may be made frequently, or at least implied. This may explain why there is no significant difference between the two groups in thinking of coercion or force as a kind of pressure. The threat of violence may be enough, and the Negro children may consequently project other types of pressures which they regard as more legitimate and fair.

Table 19

Comparison of Negro and U.S.A. Comparison Group in Terms of the Nature and Form of Pressure Against Divergency

	Percents		
Nature and Form of Pressure	Negro	USA Compar.	p
Verbal advice	0.0	5.3	NS
Laughter and ridicule	23.7	16.0	NS
Criticism	18.6	3.5	<.001
Social isolation or avoidance	5.3	0.9	NS
Expressions of hostility	23.6	0.9	<.001
Coercion or force	11.8	10.7	NS
Remedial treatment	1.6	18.7	.001
Questions asked	1.6	3.5	NS
Surprise	1.6	25.8	<.001
Others	8.5	16.9	NS
Total scoreable	59	112	

Forms of pressure minimized by the Negroes but showing a significant difference with the white pupils are remedial treatment of a medical, psychiatric or educational nature, and expressions of surprise. Perhaps readier and more available remedial facilities prompt this in the white pupils to a greater degree.

4. The Effects or Consequences of the Pressures against Divergency

The results of the pressures evidenced in the stories were classified in the following categories: fatal results (destruction or death); willing resistance (he does not give in or yield); unwilling resistance (wanted to give in and conform but was unable to do so); willing conformity (happy and satisfied to conform); and unwilling conformity (did not wish to give up divergency, but was overwhelmed and had to do so). A few responses were unclassified. Table 20 shows the responses in the various categories.

Table 20

Comparison of Reactions to Pressure against Divergency as Reflected in Stories, from Negro and Comparison Group

Cultural Group	Number Pressured	Per Cents					
		Fatality	Will. Res.	Unw. Res.	Will. Conf.	Unw. Conf.	Other
Negro	59	29.1**	20.6	41.0	6.8	6.8	0.0
Comparison Group	112	2.6	27.6	33.7	0.0	29.4*	6.1

** Chi-square (Fatality) = 19.874, significant at less than the .001 level.

* Chi-square (Unwilling Conformity) = 6.288, significant at less than the .02 level.

It is perhaps indicative of the racial tensions felt by the Negro pupils that 119 out of the 148 did not deal with the consequences or results of the pressures applied. This lack of curiosity may well hide a fear of facing the results or resisting pressures, especially the social pressures seen to be so strongly recognized in the previous section.

The highly significant difference between the white and Negro responses to fatality, where death and destruction are seen as the most appropriate responses to pressures, is probably a strong indication of the Negro children's fears. Less than three per cent of the white pupils evincing pressures respond in this way. On the other hand, a significantly larger proportion of white pupils, at better than two per cent level of confidence, depict their central character in the story as conforming in an unwilling manner. Both groups show a great deal of unwilling resistance to the pressures and are not significantly different, and it is perhaps of interest to note that by far the largest proportion of the Negro children mentioning the results of the pressures to conform in their stories (41 per cent) show unwilling resistance, that is they wanted to conform or get rid of the divergency but were unable to do so.

5. The Extent of Concern about the Causes of the Divergency

We can categorize the extent to which concern about the causes of divergency is expressed in the stories in four ways: first, no concern at all; second, where the writer refuses to accept the possibility of, or will not fantasize about, the divergency; third, where the story is concerned exclusively about causation explaining how the divergency came about, with little or no treatment of the consequences of the divergency; and finally, there are those who are concerned, but not exclusively, about the causes of the divergency.

The results of this analysis are reported in Table 21.

Table 21

Percentages Showing Concern about the Causes of Divergent Behavior Reported by Negro and U.S.A. Comparison Groups

Group	Total Number	Percents No Concern	Cause Excl.	Mod. Concern
U.S.A. Negro	143	85.7**	0.6	8.7
U.S.A. Comparison	215	28.8	12.1**	59.1**

** Chi-square (No Concern) = 114.009, significant at better than .001 level.
** Chi-square (Cause Exclusively) = 15.814, significant at better than .001 level.
** Chi-square (Moderate Concern) = 95.046, significant at better than .001 level.

In all three categories where there are responses, the two groups of white and Negro pupils differ significantly. This explains, perhaps, some of the poverty of content of the Negro children's stories that so many are unwilling or unable to speculate about how the divergency in the animals came about. This may be a reflection of an unwillingness or inability to reflect upon the nature of their own divergent racial character. The converse side of the picture is seen by the greater unwillingness of the white pupils, to a significantly different extent, to speculate about the reasons why the monkey could fly and the lion couldn't roar, either exclusively or moderately.

6. The Causes of the Divergency

The reasons why the animal should have such divergent behavior provide a variety of categories, which were classified as follows: fear forced the animal to deviate; laziness or incompetence led to the divergency; snobbery because he wanted to be different or better than the others; accident or illness; the aging process; grief, some sorrowful event caused the change; inadequacy, in that it was due to some inability to cope with normal situations; avoidance of punishment; distraction, in that the animal by being absorbed in some thought or activity failed to do what he normally did; positive goal; greed; the result of some mistake or error; the result of love or devotion; anger; education, in that lack of education or the result of special training was responsible. A few responses were unclassifiable. Table 22 shows the results of this classification.

Table 22

Causes of Divergency in the Imaginative Stories of Negro and Comparison Group Children

Causes	Per Cents Negro	 Comparison Group
Fear	0.0	9.1
Lazy, incompetent	18.7	3.9
Snobbish	0.0	0.6
Accident	6.2	26.7
Aging	0.0	4.5
Grief	0.0	8.4
Inadequacy	18.7	3.2
Punishment	0.0	0.0
Distraction	0.0	0.6

Table 22 (Continued)

Positive Goal	56.0**	12.4
Greediness	0.0	0.0
Mistake or Error	0.0	2.6
Love	0.0	0.0
Anger	6.2	8.4
Education	6.2	0.0
Other	0.0	20.9
Total Number Concerned	16	153

** Chi-square = 10.919, significant at better than .001 level.

The one significant difference between the Negro and Comparison Group children is the reason given that the divergent behavior was due to the drive for a positive goal. Perhaps the fact that this is the major reason advanced by the Negro pupils is because, for the Negro, the only way to achieve worthwhile or valuable goals is to break out from the normal taboos and deviate from accepted Negro behavior. If this is a true projection of the cultural pressures and the individual's responses to it, it may be interpreted as a compulsive drive, even though for most it is felt to end in fatality (see section 4).

Summary of Results on Imaginative Stories

One hundred and forty-eight Negro pupils were asked to write imaginative stories in the fourth, fifth and sixth grades. They were given a choice between two themes "The Monkey Who Could Fly" and "The Lion Who Couldn't Roar". Comparisons were made with other samples of fourth, fifth and sixth grade white pupils in the comparison schools and occasional references were made to the results of other groups engaged in writing imaginative stories.

In brief, the indications are that these imaginative stories do convey the assumptions and the tensions of Negro children in their culturally limited situation, mirroring some of their frustrations and restrictions, when projected into a story situation. In the light of their poor creative results, these frustrations and tensions may go a long way to explain the basis of their creative limitations.

Results of the Creative Thinking Tests

Performance on Figural Tests of Creative Thinking

Scores on the three figural tests were combined to give measures of figural fluency, flexibility, originality, and elaboration. The means and standard deviations by grade are presented in Table 23 for both the subject Negro school and the U.S.A. Comparison school described in the preceding chapter.

It will be noted that although the Negro children start out at a lower level in the first grade they gradually grade by grade equal and excel the performance of the children in the U.S.A. Comparison school, except in elaboration. Statistical tests of the differences in means are presented in Table 24. Here it will be noted that in the first grade, the children in the dominant, advantaged culture excel in fluency, flexibility, and elaboration the Negro children. One possible way of explaining this difference is that the children in the school representing the dominant, advantaged culture could have gotten a "head start" by attending kindergarten, while no kindergarten had been available to the Negro children. (This was before the days of "Head Start.") Even then, however, the advantaged children did not show superiority in originality. After the first grade, the Negro children actually achieved significantly higher scores on originality than their counterparts in the Comparison school. By the fourth grade, they show superiority in all of the measures except elaboration and they are still significantly behind in this respect.

From Table 23 it will be noted that a slight dip occurs in fluency in the third grade, but nowhere is there a fourth grade slump. The statistical tests for linearity in the developmental curves are shown in Table 25. Among the males, only the developmental curve for fluency shows significant departures from linearity. Among the females, both the curves for fluency and flexibility show such departures. When males and females are combined, the curves for fluency, flexibility, and elaboration all show such departures. What seems to be operating is that they do not maintain the rate of gain shown between the first and second grades. The initial level on originality was relatively high and the gain between the first and second grade was not as sharp as on the other scores.

Table 23

Means and Standard Deviations by Grade of Negro U.S.A. and Comparison Schools on Figural Tests of Creative Thinking

Sample and Grade	No.	Fluency		Flexibility		Originality		Elaboration	
		Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A. Comp. 1st.	72	13.80	4.12	11.07	3.14	11.78	8.31	45.32	17.92
U.S.A. Negro 1st.	58	9.52	6.56	6.83	3.70	12.91	9.06	6.74	6.21
U.S.A. Comp. 2nd	123	17.33	5.27	12.99	3.16	14.75	7.75	56.34	17.72
U.S.A. Negro 2nd.	60	18.37	8.08	11.40	4.17	19.60	10.82	15.33	10.43
U.S.A. Comp. 3rd.	131	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
U.S.A. Negro 3rd.	55	17.98	5.33	12.72	2.53	20.46	10.14	20.34	8.55
U.S.A. Comp. 4th.	72	15.83	4.22	12.63	3.22	13.04	6.97	46.32	15.23
U.S.A. Negro 4th.	45	20.04	6.02	13.93	2.81	23.82	9.72	21.47	9.61

Table 24

Tests of Significance of Differences in Means Between U.S.A. Negro and U.S.A. Comparison Groups on Figural Tests at Creative Thinking by Grade

Grade	Fluency		Flexibility		Originality		Elaboration	
	t-ratio	p	t-ratio	p	t-ratio	p	t-ratio	p
1st.	4.32	<.01	7.19	<.01	0.75	NS	17.34	<.01
2nd.	0.90	NS	2.61	<.01	3.11*	<.01	19.67	<.01
3rd.	0.85	NS	0.07	NS	3.66*	<.01	14.68	<.01
4th.	4.13*	<.01	2.13*	<.05	6.46*	<.01	10.97	<.01

* Indicates difference is in favor of U.S.A. Negro group.

Table 25

Tests of Linearity of Developmental Curves in U.S.A. Negro Sample on Figural Tests of Creative Thinking

Measure	Males F-Ratio	Males p	Females F-Ratio	Females p	Combined F-ratio	Combined p
Fluency	4.08	<.05	9.17	<.01	11.61	<.01
Flexibility	1.69	NS	8.63	<.01	8.56	<.01
Originality	0.56	NS	2.61	NS	2.43	NS
Elaboration	1.42	NS	3.01	NS	6.06	<.01

These findings contain both encouraging and discouraging notes for those who would like to draw implications for the education of disadvantaged children. The encouraging notes lie in the fact that there is considerable growth on all of the figural measures between the first and fourth grades and this growth appears to be fairly continuous. The level of functioning except on elaboration is encouraging. Educators, however, should take note of the relatively low level of elaboration. From a number of studies (Dodd, 1964; Will, 1964; Kuo, 1967) inability to elaborate seems to be associated with delinquent behavior, low achievement, and school dropout. Thus, it is suggested the compensatory programs for disadvantaged children should give attention to the development of the ability to elaborate ideas.

Performance on the Ask-and-Guess Test

The means and standard deviations on the Ask Questions section of the Ask-and-Guess Test are shown in Table 26 for both the Negro and the Comparison groups. Here the lack of verbal skills among the Negro children really come to the forefront. In the third grade, the Negro children are at a very low level and they do not improve perceptibly between the third and sixth grades. As will be noted in Table 27, all of the differences in the mean scores of the Negro and the Comparison group samples are statistically significant at a high level of confidence.

Table 26

Means and Standard Deviations by Grade of Negro U.S.A. and U.S.A. Comparison Schools on Ask Questions Test

		Fluency		Flexibility		Originality	
Sample and Grade	No.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U.S.A. Comp. 3rd.	131	9.22	4.75	6.58	3.01	10.54	7.51
U.S.A. Negro 3rd.	55	2.35	1.97	1.64	1.06	1.58	2.46
U.S.A. Comp. 4th.	72	4.51	2.55	3.81	1.66	3.96	3.35
U.S.A. Negro 4th.	45	1.31	1.26	1.24	1.21	0.53	1.24
U.S.A. Comp. 5th.	145	7.80	3.95	5.55	2.27	5.61	3.90
U.S.A. Negro 5th.	67	1.33	1.62	1.28	1.45	0.81	1.53
U.S.A. Comp. 6th.	73	7.16	3.11	5.75	2.50	5.51	3.44
U.S.A. Negro 6th.	54	3.22	2.57	2.46	1.91	3.44	3.21

Table 27

Tests of Significance of Differences in Means Between U.S.A. Negro and U.S.A. Comparison Groups on Ask Questions Test by Grades

	Fluency		Flexibility		Originality	
Grade	t-ratio	p	t-ratio	p	t-ratio	p
3rd.	11.45	<.01	13.35	<.01	9.85	<.01
4th.	9.14	<.01	9.88	<.01	7.98	<.01
5th.	17.03	<.01	16.42	<.01	12.97	<.01
6th.	7.88	<.01	8.44	<.01	3.28	<.05

Note: All differences are in favor of the U.S.A. Comparison Group.

Table 28 contains the means and standard deviations of the Negro and Comparison groups on the Guess Causes section of the Ask-and-Guess Test. The picture here is even more pathetic than on the Ask Questions section. Many of the children at all grade levels are unable to think of any genuine causes. There is no slump in the fourth grade or anywhere else because there is never any height from which to drop. The children in this school simply show practically no development in their causal thinking as assessed by this procedure. Table 29 simply

Table 28

Means and Standard Deviations by Grade of Negro and U.S.A. Comparison Schools on Guess Causes Test

Sample and Grade	Fluency Mean	Fluency St.Dev.	Flexibility Mean	Flexibility St.Dev.	Originality Mean	Originality St.Dev.
U.S.A. Comp. 3rd.	4.84	2.29	3.49	1.37	5.80	4.35
U.S.A. Negro 3rd.	1.26	1.81	0.78	0.74	1.75	2.56
U.S.A. Comp. 4th.	3.24	2.09	2.50	1.46	3.99	2.93
U.S.A. Negro 4th.	1.78	0.81	0.98	0.54	1.27	1.29
U.S.A. Comp. 5th.	5.07	4.14	3.19	1.92	4.69	4.47
U.S.A. Negro 5th.	1.22	1.17	1.02	0.91	0.85	1.42
U.S.A. Comp. 6th.	4.77	2.71	2.84	1.18	5.53	3.95
U.S.A. Negro 6th.	1.63	1.51	1.24	1.04	1.31	1.87

Table 29

Tests of Significance of Differences in Means Between U.S.A. Negro and U.S.A. Comparison Schools on Guess Causes Test by Grades

Grade	Fluency t-ratio	Fluency p	Flexibility t-ratio	Flexibility p	Originality t-ratio	Originality p
3rd.	10.23	<.01	15.06	<.01	6.75	.01
4th.	5.41	<.01	8.00	<.01	6.97	.01
5th.	10.40	<.01	16.68	<.01	9.37	.01
6th.	3.14	<.01	8.42	<.01	7.77	.01

Note: All differences are in favor of U.S.A. Comparison Schools.

supports the rather obvious fact that the Negro children consistently performed at a significantly lower level than did the children in the Comparison school.

Tables 30 and 31 showing the results of the comparisons on the Guess Consequences Test tell essentially the

Table 30

Means and Standard Deviations by Grades of Negro U.S.A. and U.S.A. Comparison Schools on Guess Consequences Test

Sample and Grade	Fluency Mean	Fluency St.Dev.	Flexibility Mean	Flexibility St.Dev.	Originality Mean	Originality St.Dev.
U.S.A. Comp. 3rd.	6.19	3.36	4.05	1.89	8.70	6.52
U.S.A. Negro 3rd.	1.22	1.33	1.00	1.02	1.02	1.65
U.S.A. Comp. 4th.	4.03	4.36	3.01	1.58	4.63	3.72
U.S.A. Negro 4th.	1.67	1.11	1.40	0.87	1.67	2.06
U.S.A. Comp. 5th.	6.04	4.12	3.58	2.20	5.75	4.97
U.S.A. Negro 5th.	1.85	1.47	1.48	1.06	1.02	1.67
U.S.A. Comp. 6th.	5.16	2.14	3.59	1.40	5.77	3.51
U.S.A. Negro 6th.	2.11	1.91	1.67	1.43	2.02	2.56

Table 31

Tests of Significance of Differences in Means Between U.S.A. Negro and U.S.A. Comparison Schools on Guess Consequences Test by Grades

Grade	Fluency t-ratio	Fluency p	Flexibility t-ratio	Flexibility p	Originality t-ratio	Originality p
3rd.	11.83	<.01	12.20	<.01	9.97	<.01
4th.	4.37	<.01	6.44	<.01	5.48	<.01
5th.	10.74	<.01	9.54	<.01	10.26	<.01
6th.	8.71	<.01	8.00	<.01	6.94	<.01

Note: All differences in favor of U.S.A. Comparison School.

same story as did the data on the Ask Questions and Guess Causes sections of the test.

Performance on the Product Improvement Test

The means and standard deviations by grade on the Product Improvement test are presented in Table 32 for both the Negro and Comparison groups. The story told by these data is essentially the same as that told by the Ask-and-Guess Test data. The only difference is that there is a slight sign of growth between the fifth and sixth grades. Even here, however, the growth is quite slight and as seen from the tests of significance of the differences in the means of the Negro and Comparison groups in Table 33, the Negro children in the sixth grade are far, far below their counterparts in the Comparison school.

Table 32

Means and Standard Deviations by Grade of Negro and U.S.A. Comparison Schools on Product Improvement Test

Sample and Grade	Fluency		Flexibility		Originality	
	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A. Comp. 4th.	7.63	4.18	3.75	1.63	6.49	5.63
U.S.A. Negro 4th.	1.27	1.77	0.98	0.78	0.42	0.99
U.S.A. Comp. 5th.	9.30	5.23	4.45	1.89	8.65	6.79
U.S.A. Negro 5th.	1.98	2.07	1.28	1.27	0.93	1.53
U.S.A. Comp. 6th.	10.76	4.98	5.25	1.76	9.11	5.76
U.S.A. Negro 6th.	3.59	2.82	2.07	1.65	1.52	2.04

Table 33

Tests of Significance of Differences in Means Between U.S.A. Negro and U.S.A. Comparison Schools on Product Improvement Test by Grades

	Fluency		Flexibility		Originality	
Grade	t-ratio	p	t-ratio	p	t-ratio	p
4th.	12.23	<.01	14.64	<.01	10.24	<.01
5th.	12.59	<.01	14.41	<.01	10.60	<.01
6th.	8.93	<.01	7.58	<.01	10.40	<.01

Note: All differences are in favor of U.S.A. Comparison School.

Performance on the Unusual Uses Test

Tables 34 and 35 present the developmental and comparative data for the Unusual Uses Test. Again, it

Table 34

Means and Standard Deviations by Grade of Negro and U.S.A. Comparison Schools on Unusual Uses Test

	Fluency		Flexibility		Originality	
Sample and Grade	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A. Comp. 4th.	8.65	5.53	3.44	1.80	4.18	5.68
U.S.A. Negro 4th.	0.80	0.94	0.71	0.84	1.16	1.67
U.S.A. Comp. 5th.	10.95	9.04	5.08	3.43	9.58	8.54
U.S.A. Negro 5th	0.84	1.32	0.76	1.20	1.22	1.89
U.S.A. Comp. 6th.	11.34	6.10	4.82	2.30	7.11	6.05
U.S.A. Negro 6th.	2.50	3.31	2.02	2.62	3.61	5.92

Table 35

Tests of Significance of Differences in Means Between U.S.A. Negro and U.S.A. Comparison Schools on Unusual Uses Test by Grades

Grade	Fluency t-ratio	Fluency p	Flexibility t-ratio	Flexibility p	Originality t-ratio	Originality p
4th.	11.72	<.01	11.38	<.01	4.25	<.01
5th.	13.12	<.01	13.50	<.01	11.15	<.01
6th.	10.52	<.01	6.67	<.01	3.36	<.01

Note: All differences are in favor of U.S.A. Comparison School.

will be noted that the mean scores of the Negro children are extremely low and that there is little growth in their ability to produce ideas for unusual uses of tin cans. There is some slight promise of growth in the sixth grade. It is so slight, however, that the promise it offers is not very strong.

Tests of Linearity of Developmental Curves on Verbal Tests

The profiles derived from the total verbal fluency, flexibility, and originality scores were tested for linearity by the method already described. The results are shown in Table 36. It should be noted, however, that the departures from linearity result not from significant drops at any point in the developmental curve but from the failure of growth to be manifested.

Table 36

Tests of Linearity of Developmental Curves in U.S.A. Negro Sample on Verbal Tests of Creative Thinking

Measure	Males F-Ratio	Males p	Females F-Ratio	Females p	Combined F-Ratio	Combined p
Fluency	0.55	NS	18.12	<.01	3.63	<.01
Flexibility	4.31	<.01	4.70	<.01	6.78	<.01
Originality	2.66	NS	11.70	<.01	8.44	<.01

Relative Level of Functioning on Figural and Verbal Tests

In some cultures children perform disproportionately better on the figural than on the verbal tests and in other cultures the reverse is true. In the Negro culture of the South, it seems obvious by this point that children in this culture perform comparatively better on the figural than on the verbal tests. In order to develop quantitative representations of this somewhat obvious fact, the mean scores of the Negro pupils were converted to standard scores using the data from the U.S.A. comparison group as the basis for determining standard scores. The results of this analysis are depicted for the fourth grade by Figure 8. It will be noted that two of the figural measures, fluency and originality, are one or more standard deviations (10 or more standard score units) above the mean of the U.S.A. Comparison Group fourth graders and that figural elaboration and all three of the verbal measures are one or

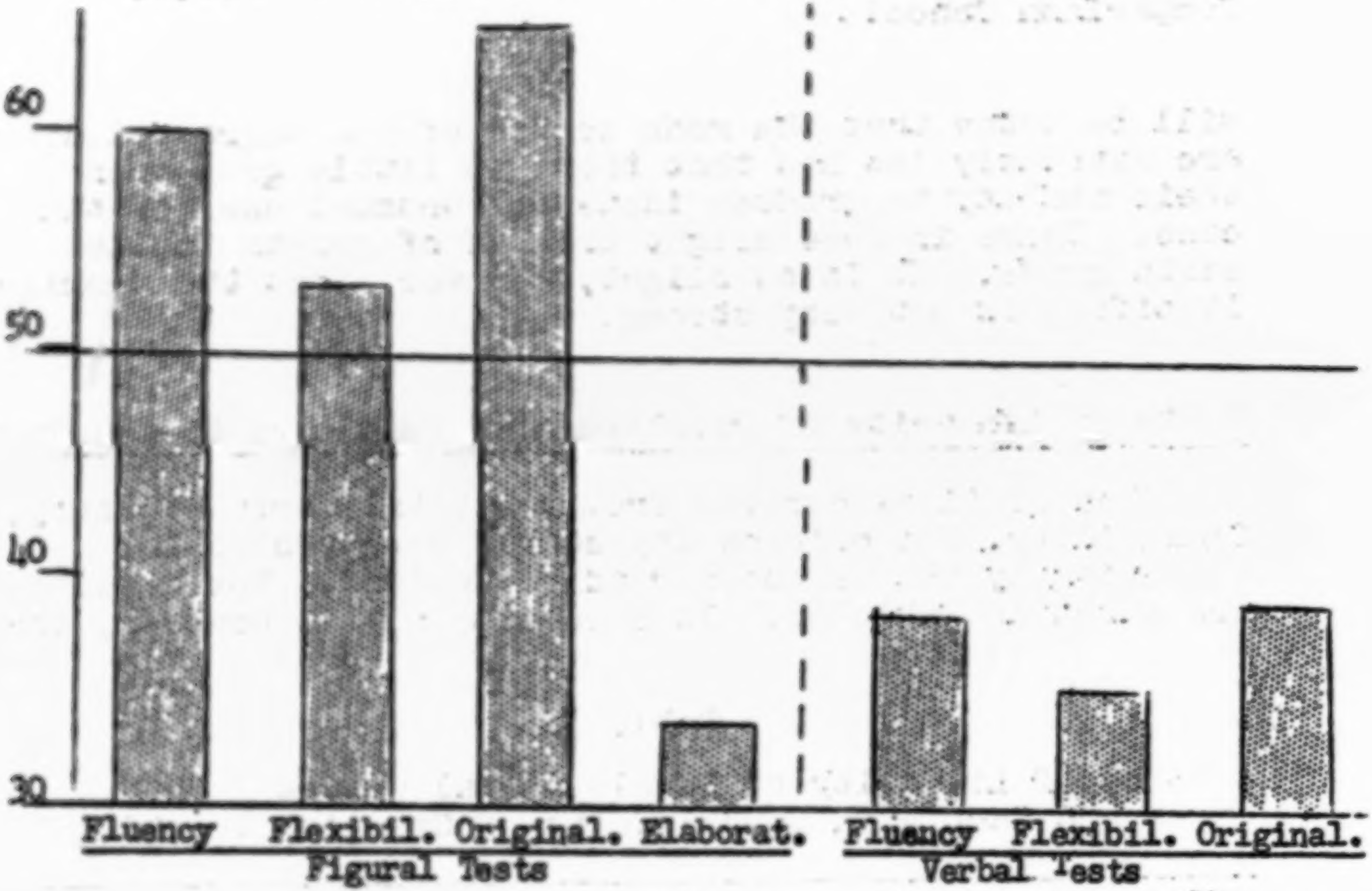

Figure 8. Mean Scores of Fourth Grade Negro Pupils Converted to Standard Scores Based on U.S.A. Comparison Group Data

more standard deviations below the respective means. This comparison makes the poor performance of the Negro children on elaboration even more striking than have the other comparisons.

It is easy to fit these findings into other findings concerning the intellectual characteristics of children growing up in a disadvantaged culture and into our information about the Negro culture of the South. Almost all studies show an impoverishment of verbal stimuli in the culture and serious lags in verbal skills of almost all kinds. The inability to elaborate is perhaps associated with tendencies to rapid and premature closure, inability to delay gratification, and the like.

Studies such as those of Reissman (1965), however, have caused many investigators to wonder about the validity of conclusions about the lack of verbal skills among Negro and other disadvantaged children. Such conclusions are difficult to evaluate. In a creativity workshop conducted by my associates and me for 20 disadvantaged Negro children in grades three through six, we obtained much self-contradictory evidence. We administered the tests of creative thinking only after they had been "warmed up" by a variety of creative experiences. Furthermore, the verbal tests were administered individually and orally without a time limit. We were all quite overwhelmed by the verbal output of these children and many of their ideas were of high quality. Even under these rather ideal conditions, however, there were many problems of motivation to exert expensive intellectual energy in responding to the verbal tests. Two Negro boys failed to complete the verbal battery in two sittings, even with considerable encouragement from a sympathetic examiner. On each occasion, they complained that they were extremely fatigued after giving excellent performances on about two of the test tasks. At any rate, it would seem unwise to accept the present results and similar ones at face value without further experimentation with different methods of stimulation and motivation.

Chapter 5

CREATIVE DEVELOPMENT IN WESTERN AUSTRALIA

Two schools in Western Australia were selected to represent another English-speaking, pioneer-oriented country that might be similar to the advantaged, dominant culture of the United States. One of these schools was located in a rural area and the other in an urban area, both in Western Australia. An Aborigine school was also selected and data concerning creative development were collected. The number in the Aborigine sample was so small, however, that the results of this study (Eastwood, 1961) will not be reported.

The Australian Culture

A number of preconceptions about the Australian culture led to the selection for study of the two schools in Western Australia. I knew of the Australian's reputation for reliance and independence; at the same time, I knew of his reputation for lack of imagination. Since we were concerned about the effects of peer pressures in peer-oriented United States culture, Australia was chosen for its reputation as having a relatively low peer-orientation and greater consideration among children for the judgments of adults.

Admittedly, Australian culture is diverse and those who have studied it give varying impressions. It seems appropriate here to summarize a few of the impressions derived from publications that were issued shortly before the collection of the data for this study.

Cairns and Cairns (1953) described the Australian as self-reliant and independent yet strongly desiring cooperation or solidarity with his own class -- his "mates" or "cobbers." They described him as disliking discipline, not easily led, and slow to be convinced. The Australian, according to them, does not think that there is anything important about laws, rules, and advice from distinguished people. They pointed out that these characteristics make the Australian very safe from propaganda and from being made a fool of but very difficult to move to constructive action. They characterized him as doing his best to get what he wants at least cost to himself. As a result he often gives the impression of being lazy but when he believes that speed and energy are worthwhile, he often surpasses his ambitious and industrious critics. They pointed to the Australian's unimaginativeness, explaining that, although his problems have required courage and toughness, they have not required concentrated and deep thought.

McAulay (1960) has attempted to picture a changing Australia. According to him, educators were trying to find ways of decentralizing administrative and financial control and giving more individual freedom in curriculum formation and teaching methods to local teaching staffs without weakening standards. Where seniority had been a major criterion in making appointments to important educational posts, McAulay wrote that younger men with fresh and new ideas were being placed in top administrative positions. He also reported ongoing attempts to de-emphasize the all-importance of state examinations. He admitted, however, that although child development was given an important place in teacher preparation, the teachers themselves like and almost fight to retain the security of being told "how, what, and when" by inspectors and examinations and wish to retain the easier road of textbook matter and definite state syllabi.

McAulay (1960) reported that Australian parents are as dissatisfied with their schools as American parents are. Their major discontent, according to him, is aimed at the too rigid, too academic curriculum which prepares only a small percentage of the population for citizenship.

Oeser and his associates at the University of Melbourne conducted a series of studies of social behavior that seem to have important implications for the present investigation. One study dealt with personality development in a city and the other dealt with personality development in a rural area.

In the study of personality development in a city, Oeser and Hammond (1954) reported that in general the methods of discipline include: scolding, bargaining, reasoning, physical punishment, teasing, isolating, and shaming. Three-year-old children are expected to be relatively independent in simple activities like looking after themselves. They are expected to be able to wash their own hands and dry them on a towel, manage at the toilet, sit at the table and eat with spoon and fork, and help themselves in dressing. The four-year child, in addition to these things, is expected to be cooperative with people, respect property, and unite against another child who is destructive or who takes things that belong to others. Physical aggression is continually checked and children begin to reject those who are unduly aggressive and those who do what is know to be forbidden. Children who can invent games or who act as "protectors" of other children are popular. Most Australian children begin school at age five, so there is emphasis upon the skills needed for successful school adjustment. Obedience to parents and teachers is expected and emphasized.

Oeser and Hammond (1954, p. 213) concluded that the most striking feature of the urban school is its almost complete disassociation from the social life of the community. They reported that the "professed aims for schools are to transmit knowledge and skills down the generations, and to integrate the community psychologically by giving future citizens a sense of historical continuity, inculcating a common national ideology and other values and common standards of personal behavior."

Oeser and Hammond (1954, p. 219) pictured the urban culture that they studied as relatively peer-oriented. According to them, a child's status is based not on the teachers' judgments but on the values held by the members of his group. The most important criteria of status were: leadership, skill in peer group and academic activities, and social skills.

Oeser and Emery (1954), in a similar study in a rural community, found that farm children appear to be basically oriented towards their family group. This implies very full participation in the day-to-day work activities of the family, an increase in the solidarity of the family, and an added assurance that the farm property will remain in possession of the family. Oeser and Emery saw this as a sharp contrast to the peer-orientation of children in urban areas.

R. Freeman Butts (1955), the educational historian, made a very penetrating study of Australian education for the Australian Council for Educational Research. Many of his conclusions have direct relevance to the objectives of the present investigation. At the outset, he asserts that one of the biggest differences between Australian and American education is that Australian education starts from the universities and works downwards, while American education starts with the masses to be educated and works upwards. Butts (p. 42) reported that everywhere he went in Australia he found a remarkable uniformity in educational programs. He explained that this is the natural consequence of centralized administrative policies, the inspectorial system, the state syllabus, the hierarchy of academic studies, the system of external examinations, and university matriculation. He also felt that the teachers' colleges contributed to this uniformity through demonstration lessons and the traditional assumptions of many teachers' colleges and university lecturers. He found a widely accepted assumption that there are definite bodies of knowledge that should be attained by children at specific age and grade levels. Butts felt that there was an overemphasis on content and method to the neglect of the needs and growth of the child or the needs and future of society.

Butts (1955, p. 47) reported that he saw throughout Australia much evidence of rigid, uniform treatment of little children that rested upon the assumption that the major goals of primary education are orderliness, discipline, and development of skills. On one occasion, he reported, forty five-year olds sat in straight rows with their arms folded or their hands behind their heads while the teacher lectured them on numbers or spelling or had them recite in unison the words to which she pointed on charts. Even in kindergartens, there was no smiling, no giggling, no laughing, no running or crawling about, no outward show of pleasure or pain, and no manipulation of large objects. While Butts found that there are many Australian teachers who believe in a better balanced kind of education, he did not think that there are yet enough who believe in the principle enough to put it into effect.

Butts (1955, p. 52) reported that the climate for educational experimentation was extremely unfavorable in Australia. He found instead a strong belief that traditional methods are better than experimentation with new methods. Teachers and inspectors repeatedly told him, "After all, we can't experiment with human beings; we can't change our methods until we are sure that new ones will be better than the old ones." Everywhere he found great emphasis upon uniform standards of acceptability in both oral and written work, with little effort to help students delve below the surface of the words and to get to the meanings and understandings. Butts was of the opinion that the educational methods of Australian schools contributed to a repression of the "ebullience, heartiness, and zest that are likely to characterize childish and adolescent behavior when not so restricted" (p. 58). His over-all impression was that children should be quiet, courteous, respectful, obedient, and orderly.

Now, let us examine the data obtained from the teachers of the two schools in Western Australia that are the subjects of this study. We shall try to determine how well these data fit the characterizations that resulted from the studies of Butts, Oeser, Cairns and Cairns, and McAulay. We shall also try to show some relationships between the values and practices of the teachers in our Australian subject school and those of the teachers in the U.S.A. comparison school.

The Ideal Pupil Checklist

Responses to the Ideal Pupil Checklist were obtained from 21 of the 24 Australian teachers who participated in the study. Table 37 presents the rankings derived from the responses of the Australian teachers to the Ideal Pupil Checklist along with the rankings obtained from the panel of experts who ranked these characteristics in terms of the productive, creative personality, and the sample of 1512 U.S.A. teachers.

Table 37

Rankings of Ideal Pupil Characteristics by Expert Panel, U.S.A. Sample of Teachers, and Western Australian Teachers

Characteristics	Expert Panel (N=10)	United States (N=1512)	Western Australia (N=21)
Adventurous	11.5	19	32
Affectionate, loving	41	32	35
Altruistic, good of others	48	36	38
Always asking questions	13	38	41
Attempting difficult jobs	18	20	16.5
A self-starter	11.5	12	32
A good guesser	16	53	45
Bashful	60	56	51
Becomes preoccupied	8	41	28
Considerate of others	45	1	4
Courageous in convictions	1	22	19.5
Courteous	56	8	9
Curious	2.5	4	11.5
Competitive	44	34	24
Desires to excel	37	21	19.5
Determined	16	6	19.5
Domineering	51	61	57.5
Disturbs class organiz. and procedures	36	60	62
Does work on time	56	13	13
Emotional	34	50	50
Emotionally sensitive	14	43	48.5
Energetic	20.5	14.5	7
Fault-finding	43	58	59.5
Critical of others	39	46	54

Table 37 (Continued)

Characteristics	Expert Panel (N=10)	United States (N=1512)	Western Australia (N=21)
Haughty, self-satisfied	61	62	61
Healthy	46.5	7	4
Independent in judgment	4.5	16	32
Independent in thinking	2.5	2	24
Intuitive	6	30	35
Industrious	31	9	1
Likes to work alone	28	44	38
Never bored	25	40	28
Nonconforming	26	51	55.5
Negativistic	53	59	57.5
Obedient	58.5	25	4
Popular, well-liked by peers	49.5	28	30
Persistent	8	23	41
Prefers complex tasks	22.5	39	35
Physically strong	52.5	37	28
Quiet	52.5	48	24
Receptive to ideas of others	34	11	40.5
Regresses occasionally	28	49	58
Reserved	49.5	47	47
Remembers well	31	24	14.5
Self-confident	19	10	11.5
Self-assertive	28	42	45
Self-sufficient	20.5	31	38
Sense of humor	22.5	3	7
Sense of beauty	31	17	10
Sincere	25	5	2
Spirited in disagreement	34	45	52
Strives for distant goals	16	26	19.5
Stubborn	39	57	55.5
Sophisticated	42	54	48.5
Timid	58.5	55	45
Thorough	24	18	7
Talkative	46.5	52	59.5
Unwilling to accept on mere say so	8	35	24
Visionary	10	27	41
Versatile, well-rounded	39	14.5	24
Willing to take risks	4.5	29	45
Willing to accept judgment of authorities	62	33	16.5

When the rankings of the Australian teachers are compared with those of the U.S.A. teachers, a rank-order coefficient of correlation of .85 results. When compared with the rankings of the expert panel, a rank-order coefficient of correlation of .19 results compared to one of .43 for the U.S.A. teachers. From Chapter 3, it will be recalled that the rankings of the teachers in the U.S.A. comparison school correlated .82.

Most of the big differences in the rankings of the U.S.A. and Australian teachers are strangely reminiscent of the characterizations by Butts, Cairns and Cairns, and the others referred to in the preceding section. The Australian teachers compared with the U.S.A. teachers placed greater emphasis upon obedience, remembering well, industriousness, quietness, thoroughness, and willingness to accept the judgment of authorities. They were more likely to discourage, or certainly less likely to encourage, such characteristics as: adventurousness, being a self-starter, curiosity, determination, persistence, independence in thinking, independence in judgment, receptiveness to the ideas of others, and occasional regression to childlike behavior such as playing, laughing, giggling, and the like.

Now let us turn to the summarization of the detailed interview data with the teachers of the two Australian schools, first to the urban and then to the rural school.

An Urban Australian School

The urban school selected for study is a government school located in a suburb of Perth in Western Australia. There were twelve teachers in the school with a total enrollment of 556, an average of 46.33 per class. Boys and girls were rather equally distributed among the classes. The age range for most of the classes was one year or less. The age range in one sixth grade class, however, was 3.2 years.

Except in one class, the seating arrangements were determined by the teacher. There were no distinct groupings by sex in any of the classrooms, according to the teachers. In one class, the teacher reported that she asked the children for their preferences and tried to "place them so that they will be happy (mischief makers I avoid placing together)." Most teachers also commented that they arranged pupils according to ability, taking care to seat those requiring special help at the front of the room.

Most of the teachers reported that both boys and girls preferred to work alone rather than in groups or together with another child. All agreed that boys preferred to work with other boys and girls preferred to work with other girls. Five of the teachers reported that their pupils work well together but four of them reported that no group participation methods of instruction had been tried. Cliques apparently formed only among the sexes and were most active during recreation periods. Teachers discouraged the formation of cliques in the classroom.

No deviations were reported in the administration of the tests of creative thinking. All teachers reported that the pupils "enjoyed" or "enjoyed very much" taking the tests. The administration was supervised by a research team from the Department of Education at Perth. Substitute teachers were employed to assist with the individual test administration in the lower grades. Only two teachers reported that their pupils had had experiences in taking either individual or group intelligence tests and only two reported that theirs had taken standardized reading tests. None reported the use of standardized achievement tests. About one half of the teachers reported that they had given multiple-choice, true-false, and completion tests; four of them indicated that they had given essay tests; but only one indicated any use of multiple-response, creative type tests. Five of them reported having used individual recitation and eight, group recitation, as methods of testing. None reported the use of experiments or demonstrations. The use of timed tests in the school, however, was apparently fairly common, averaging about 7.4 during a school term or year.

The teachers reported that the boys and girls have about the same drawing experiences. There were some indications that boys excel girls in mechanical drawing and girls excel boys in fine design work. In all classes, art instruction was by the regular classroom teacher. The teachers reported that they usually specified what was to be drawn but that some opportunity was given for individual expression. Pupils usually drew things related to their daily lives but at times were required to make illustrations of stories.

According to the reports of the teachers. pupils in this school spent most of their time learning writing and grammar, slightly less time learning subjects such as reading, arithmetic, arts and crafts, physical training, and social studies in that order.

For all grades the school year was ten months, five days per week, 5-1/2 hours per day. All instruction was in the English language.

In the first grade, promotion was automatic. In the second and third grade, reading and number ability determined promotion. Thereafter, promotion proceeded uniformly, according to age. Pupils in the first grade were not assigned grades; in the second grade, they were graded on reading ability; in the third, on reading, English, and numbers; in the other grades, on reading, English, and arithmetic as assessed by standardized tests. Apparently, retarded children were placed in special classes. According to teachers beyond the first grade, children were strongly or extremely concerned about grades and promotion. They were upset and anxious about doing poorly on tests. Failure, according to the teachers, seemed to reduce some pupils to tears while others made "an unconvincing display of 'I don't care.'" Most pupils appeared to try hard to meet the expectations of their parents and teachers.

According to the teacher's reports, the primary aim of the school was to prepare the student for secondary school education. Basic skills in reading, writing, and arithmetic were stressed. There were also indications in the teachers' responses that the school systematically engaged in socializing the child, as the following comment by one teacher illustrates:

> "Children are instilled with a love for God and their country and Queen. Respect for authorities and their equals, and tolerance is another virtue which the school tries to instill in their students. The results I think my school would like to see when a child leaves would be a patriotic, tolerant, and God-fearing child equipped with educational knowledge essential for higher studies, adept at some sporting skill, with an appreciation of the arts."

The average age of the teachers of this school was 26. Most of them had completed at least two years of college-level work or teacher training. Only one had completed as much as four years of college. All of the teachers of the first two grades were women and all except one of the other teachers were men.

The teachers reported that they used a variety of teaching methods. Eight of them listed demonstrations but only one-half of them rated it most important. The second choice of teaching method was problem-solving, usually in arithmetic. Class discussion in social studies was the third most frequently mentioned method. The teachers described their manner of teaching as friendly and even permissive, somewhat at variance with the observations of Butts and other observers of Australian schools.

Eleven of the teachers responded to the questions concerning provisions for individual differences. Pupils in eight of the twelve classes were permitted to work independently of the rest of the class. Uniform assignments to all pupils were given in six of the classes, while differences occurred in the amount and/or type of work assigned in the other six classes. While all of the teachers stated that they would answer pupils' questions, they placed various kinds of restrictions on the asking of questions. Only two teachers "freely encouraged questions at all times." The restrictions placed on questioning included such things as: must not interrupt assignments, must be sensible and pertinent, must not be trivial, must be asked in a "disciplined manner," and must contribute to the clarification of the problem currently being discussed.

Only four of the teachers replied in any detail to the question, "How free do you feel the pupils feel to express their ideas?" One of these stated that "the students are at liberty to express their ideas at any convenient time." Two agreed that free expression should be restricted to "news time," "oral expression" times, or recess. They encouraged their pupils to make their classroom remarks relevant to the topic of discussion. The fourth teacher wrote that students "should learn to think first" and then to express their ideas.

The disciplinary policies of the school are not clear from the responses of the teachers. Most of them indicated that each teacher deals with discipline matters in his own way. A minority stated that they conformed with the formal disciplinary rules of the school. All indicated, however, that they did not use physical punishment. This was the task of the headmaster, or deputy, who seldom resorted to physical means (caning on the hands or spanking) and then only with boys. Girls were never punished physically. Offending pupils were usually punished by assigning them extra work, keeping them after school, or by excluding them from play and sports activities.

The reported reward system of the teachers was uniform: (1) boys and girls are rewarded alike, (2) both individual and group rewards are given,

(3) teachers develop their own systems of reward, (4) rewards are made in recognition of exceptional performance and "good" behavior, (5) within-class competition for rewards is promoted; and (6) the usual rewards are given in the form of extra privileges, achievement and behavior stamps, and praise by the teacher.

No consistent pattern of differences between the work habits of boys and girls was reported. Five of the teachers felt that boys and girls work with equal willingness and ability. Two of the second grade and one of the fifth grade teachers thought that girls work more willingly than boys. Some felt that girls learned more rapidly in spelling, English, writing, and hygiene and that boys learned more rapidly in arithmetic, story writing, and social studies. In general, boys were considered less tidy and more unruly than girls.

In most cases, children compared their performance on tests to the group's by examining the class chart displayed on the bulletin board. Weekly or fortnightly tests in arithmetic, English, and spelling were given. On occasion, parents were informed of the pupil's performance, usually at the time of the half-yearly reports. Teachers reported that pupils did a great deal of comparing their performance with that of their classmates.

There were no classes in which pupils failed to respect the authority of their teachers. If there were any rebels, they were not mentioned. Unruliness, boisterousness and disobedience were conspicuously absent from the teachers' reports. One teacher commented that "most of his pupils are fairly easy to deal with," and another commented that his pupils "identify me with their father."

Student competition is for grades, honors, and special privileges. They compete in two ways: achievement in the skill subjects and "good" behavior (keeping quiet, obeying orders, and following instructions). Some of the teachers, however, opposed competition. One commented: "Competition for honors among the students is not encouraged. Each is expected to do his or her best without the establishment of a cut-throat, highly undesirable situation of each child trying to show up the other."

On the Ideal Pupil Checklist, the characteristics most strongly and uniformly discouraged are: disturbs class organization, domineering, haughty and self-satisfied, talkative, fault-finding, and negativistic. The characteristics most strongly encouraged are: considerate of others, industrious, sincere, healthy, obedient, and sense of beauty.

A Rural Australian School

There were also twelve teachers in the rural school southeast of Perth and the enrollment was 513, a mean of 42.75 per teacher. As in the urban school, the data collection was supervised by the research office of the Department of Education at Perth with assistance from substitute teachers employed for this purpose.

The age span within classes was greater than in the urban school. In most classes it was as much as two years and in one class it was five years. Four of the classes had an age span of less than one year, however.

Boys and girls were fairly evenly distributed among each class and only two classes, one in the fourth grade and the other in the sixth, reported any within class sex grouping. There seemed to be no general tendency concerning seating arrangement. In some classes the teacher determined the seating arrangement. In the others, the seating arrangement seemed to be "random" or "indiscriminate," with no attention to sex, ability, achievement, or the like.

In five of the classes pupils were described as preferring to work alone; in seven the reported preference was for working together. In each class the preferences of boys and girls were reported to have been the same.

The teachers reported that boys and girls worked easily together. Only on the playground did cliques form. In the upper grades, cliques became more common, usually among girls. One of the second grade teachers commented: "Certain cliques form on the basis of sex, but are not permanent or stable. These cliques tend to shun those who attempt to 'boss' others or who are unclean in habits and dislike working with these children."

The pupils in this school had had a great deal of testing experience. The teachers reported that their pupils had had on the average 18.17 timed tests during the year. Five of them reported that their pupils had had individual intelligence tests and 10 reported that theirs had had group intelligence tests. Five had

had standardized reading tests; five, standardized achievement tests; three, musical aptitude tests; and four, other aptitude tests. Almost all classes had had experience in taking multiple-choice, true-false, and completion tests. Nine reported that their pupils had had essay tests and eleven indicated that their pupils had had multiple-response, creative type tests.

All teachers reported the use of both individual and group recitation as methods of oral testing. Two reported the use of experiments and six mentioned demonstrations.

All teachers reported that boys and girls were given the same kinds of art experiences. In all cases, art instruction was given by the regular teacher. In all except one class (a sixth grade one), the teacher prescribed what the pupils drew. "People doing things" constituted the subject matter of most of their drawings.

Nine of the teachers reported that their pupils enjoyed taking the tests of creative thinking and the other three did not respond to this question. They commented that their pupils were "enthusiastic" about the test or "took it in stride without any fuss."

Reports by the teachers of amount of time devoted to various activities indicated that by far the greatest amount of time was devoted to teaching writing and grammar. Next in order came arithmetic, reading, social studies, and arts and crafts (including sewing). Mechanical drawing, nature study, spelling, literature, music, and speech received smaller shares of time.

The school year was ten months in length, five days per week, 6-1/2 hours per day. All instruction was in English.

Examinations, given twice each year, formed the criterion for grading students. While promotion was based on test performance, chronological age was often a decisive factor. In the upper grades, most of the teachers believed that it is undesirable not to promote a failing pupil. Children were not retained in a grade more than one year, however. Thus, promotion was based on three considerations: (1) examination results, (2) age, and (3) ability.

Six of the teachers estimated that their pupils had strong concern about grades and promotion and the others estimated that theirs showed medium concern. This reflects a lower level of anxiety than perceived by the teachers in the urban school. In the first grade, pupils who failed tended to be immature but they "regretted that their friends are in another class." From the second through the sixth grade, the response to failure was judged by the teachers to be "concern," "slight disappointment," but they were not aware of any great concern. Failure seemed to be used as a goad to harder work by most of the teachers.

The educational philosophy of this school seemed to be "idealism with realism." The general aim of the school was two-fold, relating to education and socialization: (1) to establish sound work habits and prepare the child for higher levels of education, and (2) to establish sound character traits (a sense of citizenship, of purpose, and of Christian living).

Most of the teachers were rather young, under 25 years of age. Half of the teachers were female and half male, the females teaching in the primary grades and the males teaching in the intermediate grades. All except one of the teachers had completed two years of college or teacher training and two had completed four years of such training.

The favored method of instruction seemed to be teacher demonstration with memorization the second most stressed. The teachers expressed much concern about making the subject matter meaningful and understood by the pupils. Class discussion, experimentation, and problem-solving approaches clearly did not receive the attention given teacher demonstration and pupil memorization.

In general, it can be said that the teaching as described by the teachers was direct, formal, and relatively inflexible, especially in the skill subjects. The teaching seemed to be more informal in such areas as drama, social studies, arts and crafts, and the like, but still strict.

In six classes pupils were allowed to work independently, but in the remaining classes they were not. With the exception of two classes, a fourth and a fifth grade class, assignments were given uniformly to all pupils. In eight of the classes some exceptions were made in the amount or type of work assigned. Often, remedial assignments were given. The nature of the other exceptions was not stated.

All teachers reported that children were encouraged or permitted to ask questions, but only the three lowest grade-level teachers indicated that there were no restrictions on question asking. The others insisted that questions be relevant, arise from a desire to learn, be sensible, and asked in the proper manner. Thus, the majority placed restrictions on the nature, manner, and moments when questions may be asked. Five teachers indicated that their pupils felt completely free to express their ideas. In the other classes, the teachers specified some type of restriction or inhibition on the expression of ideas.

The pattern of discipline described by the teachers shows a high level of consensus. The deputy headmaster was responsible for all corporal punishment. Otherwise, each teacher disciplined his pupils in his own way. Violations of rules and "laziness" were prevented by encouraging children to do good work and behave well at all times. No distinctions were made between boys and girls in the way they were disciplined.

Stamps, stars, little jobs, praise in front of the class, a jelly bean, the display of names -- all constitute rewards for individual effort and good behavior. Boys and girls were rewarded alike. Individual rewards were most frequent, but in some cases groups were rewarded. Performance charts, showing individual and class results of tests, were often posted or read to the class. Individual performance was publicly recognized. The teachers believed that they set high standards of performance. They all stressed the intrinsic reward of a job well done.

The teachers were unaware of any differences between boys and girls in general work habits. Some indicated, however, that girls showed more interest and willingness to work, and performed better on language tasks than boys. They reported that girls were more mature and showed more patience with rote memory work than boys. There were problem children of both sexes.

Teachers reported that their pupils competed largely with their own performance and that scores on tests were regularly posted. Generally, the top ten pupils in the class received public recognition. The teachers seemed to give their pupils considerable feedback concerning their progress.

Most of the teachers reported that their pupils accepted their authority and were easy to work with. The teacher of one of the sixth grade classes reported some difficulties because of "the low mental age and lack of interest in achieving their best at times." In the other sixth grade class, teacher-pupil relationships were described as formal.

On the Ideal Pupil Checklist, the teachers in this school found the following characteristics most disturbing: disturbs class organization and procedures, faultfinding, stubborn, talkative, haughty and self-satisfied, negativistic, nonconforming, domineering, and critical of others. The characteristics most strongly encouraged, according to the teachers, were: considerate of others, industrious, obedient, energetic, healthy, sense of humor, thorough, sincere, receptive to ideas of others, and courteous.

Australian Culture Reflected in Children's Reading

I had originally intended to collect and analyze the most popular children's books in each of the subject cultures. Several librarians and educators concerned with children's literature in Western Australia were consulted and a collection of approximately 200 books was acquired. Thus far, however, it has not been possible to complete these analyses. One of the librarians, however, made a very careful trend analysis for a period of one month during the vacation period from February 13 to March 13, 1961. This report by Miss Jean Best of the Freemantle Children's Library will be quoted here verbatim.

> "The children, whose reading is summarised in the following report, are from a variety of environments, homes and schools. Their educational levels vary from that of the 'slow learner' to the exceptionally bright. They range from children of barely literate homes, often themselves not comprehending fully the language of the country in which they are now living, to children of highly literate parents. The bond holding these children together, that of their library, is the bond of reading.
>
> "It is not true to imply, however, that all children using a public library do so because of a desire or need for books. The frequency and extent of visits to the children's department of a public library are affected considerably by the natural characteristics of childhood - such as the desire for uniformity of action, sense of novelty, etc. So it cannot be assumed that all books borrowed from the library are read either in whole or in part.

"Children have definite ideas on the subject matter of their books, and are not easily diverted nor set off on completely fresh lines. They show a distrust of anything new or strange, unless they feel that they discovered it for themselves. They prefer, on the whole, to read fiction at first, with non-fiction gaining in popularity as the child's own mind broadens and widens its scope.

"The span of attention of a 6, 7 and even 8 year old child is comparatively short. Their attention will be held by a story, the possible length of the story depending on its ability to grasp their interest. They will not persevere with what does not interest or amuse, and there are too few non-fiction books which are well enough written to succeed with this task. They are not interested in learning, or in a subject for its own sake, and books which lightly sugar the pill of knowledge are not suitable for this age group.

"Non-fiction suitable for older children is much better and much easier to obtain on a variety of subjects. Although again it tends too often to be a competent book only, hurried out as part of a series, rather than written with any deep sincerity. Publishers appear to forget that even to an 11 year old, often the picture is more important than the text.

"The older the child, the less important is the format, the more he requires the book for its subject content. However, to the younger child the appearance of the book is often the reason it is borrowed from the library. (It is also so common an occurrence that it can hardly be called chance that the smallest children seem to take the largest books.) The best format for children beginning to enjoy reading, and the one they appreciate most, is flat, quarto rather than octavo, clear bright coloured illustration with plenty of white all through the book - i.e., wide margins, a matt paper and preferably a semi-serif type.

"As many children as possible were talked to and questioned before the following assumptions as to their likes and dislikes were made and the following list of books was compiled. It must be emphasised that they are only assumptions, and only very broad assumptions, not to be applied to all children of that particular age group.

SIX YEARS

"Few are able to read complete stories for themselves, but most are capable of recognising isolated words. They choose picture books exclusively, and enjoy them mainly for their visual attraction. They prefer the subject to be familiar and within their range of observation, preferably animals. Their vocabulary is limited even within this range and the unfamiliar must be very small in proportion to the familiar. There is no discernable difference between books read by boys and those read by girls at this age.

Awdry, Rev.	Gordon the big engine	Ed. Ward
Ardizzone, E.	Tim (stories)	O.U.P.
Barr, N.	Beaky the greedy duck	Wills & Hepworth
Brocke, L.L.	Johnny Crow's garden	Warne
Bevton, V.L.	Katy and the big snow	Faber
Clarke, M.	I can read a story	Wheaton
DeBrunhoff, J.	Babar	Methuen
Duvoisin, R.	Petunia	Bodley Head
Flack, M.	Angus and the ducks	Lane
Hale, K.	Orlando, the marmalade dat	County Life
Potter, B.	Tale of Tom Kitten	Warne
Ross, D.	Little red engine	Faber
Smiley, L.	Come shopping	Faber
Uttley, A.	Mrs. Mouse spring-cleans	Heinemann

SEVEN YEARS

"Beginning to be able to read alone with a little help for unfamiliar words and phrases. Interests widening and tastes developing. Children of this age have a strong sense of humour and enjoy books which show the ridiculousness of situations or persons. They also like repetition either of idea or words. They are interested in the sound of things, often as much as the sense the phrase may make. This is the 'fee'fi'fo'fum' stage. It also shows the first divergence between the tastes of boys and girls, boys tending towards adventure, girls to fairy tales. The split between the romantically inclined mind and the more practical masculine one is startling. Animal stories retain popularity.

Male:

Ainsworth, R.	Rufty Tufty goes camping	Heinemann
Bellhouse, L.W.	Caravan children	Harrap
Berg, L.	A box for Benny	Brockhampton
Blyton, E.	Brer Rabbit book	Newnes
Craigie, D.	Tim Hooley's hero	Dent
Drake, J.	Jiggle waggle bus	Brockhampton
Hewitt, A.	A hat for rhinoceros	Bodley Head

Female:

Busley, J.L.	Bench	Harrap
Busley, J.L.	Milly-Molly-Mandy	Harrap
Clare, H.	Five dolls	Bodley Head
Cramer, R.	Cinderella	Blackie
Egan, C.	Epaminondas	Collins
Heward, C.	Ameliaranne	Harrap
Levy, M.	Sleeping Beauty	Blackie
Lunn, P.	Fairy tales of China	Casell
Rae, G.	Mary Plain, the little bear	Routledge Kegan Paul

EIGHT YEARS

"The worlds of fact and fantasy are at their closest at this age. School is broadening the child's knowledge at such a rate that the child appears to feel that anything is possible. Fairy stories, tales of magic and fantasy are most popular at this age to both boys and girls. The mentally brighter children are beginning to link what they are finding out, both at school and outside, with their reading matter. And there is shown at this age the beginnings of instructive reading as well as recreational. The only distinction between boys' and girls' reading is that, once again, that of the boys appears to be more matter-of-fact and they appear to read non-fiction sooner than girls.

Cheesman, E.	Look at insects	H. Hamilton
Carter, E.	Junior true book of oceans	Muller

Bales, M.J.	Homer goes to Stratford	Brockhampton
Barrie, J.M.	Peter Pan	Hodder & Staughton
Browne, F.	Granny's wonderful chow	Dent

Buckley, P.	Cesare of Italy	Chatte & Windus
Grahame, K.	Wind in the willows	Dent
Harris, J.C.	Uncle Remus	Cape
Lang, A.	Fairy books	Longmans
Macdonald	Princess and the goblins	Dent
Milne, A.A.	Winnie the Pooh	Methuen
Perrault, C.	Fairy tales	Dent
Sleigh, B.	Carbonel, the cat	Parrich
Todd, B.E.	Worzel Gummidge	Hollesco
Travers, P.L.	Mary Poppins	Davies

NINE YEARS

"Animal stories, although popular, are of a different type. Whereas previously they were very personalised, they now tend to be a fairly close study of the animal's actual life and habits. Boys no longer read fairy stories because of their obvious pretence quality, although they are living, or reading, in an equally 'make-believe' world where they themselves are the heroes of various events and situations. They identify themselves with the heroes of their books. Also they are developing their rapidly expanding horizons and continually require answers to 'how', 'why', 'what' and 'where' queries. Girls are beginning to read more of the family type of story and to want continuations of tales in which favourite characters or groups have appeared.

Male:

Chipperfield,J.	Windruff of Links Tor	Hutchinson
Guillman, A.	Ann and Peter	Muller
Hadfield, A.H.	King Arthur	Dent
Kipling, R.	The jungle book	Macmillan
Oman, C.	Robin Hood	Dent
Andrew, R.C.	All about dinosaurs	Allen
Lewis, R.	Your book of carpentry	Faber
Neurath, M.	This is how it works	Parrish

Female:

Alcott, L.	Little women	Dent
Norton, M.	The borrowers	Dent
Salten, F.	Bambi	Cape
Saville, M.	Susan and Bill	Nelson
Sewell, A.	Black Beauty	Dent
Streatfield,N.	The Bell Family	Collins

De la Mare	Story of Samuel and Saul	Faber
James, H.C.	Children of the Fishing-boats	Faber
Jennings, E.	Children's verse	Batsford

TEN YEARS

"The division between boys' and girls' reading is now more definite, with the boys turning more towards the non-fiction shelves. Hero-worship is becoming more pronounced and their choice of fiction follows the same pattern. They prefer stories with a definite hero and plenty of action, sea stories and historical tales with rather swashbuckling heroes and obvious plots. However, girls still prefer fantasy although fairy tales are beginning to fade in popularity. Also they are doing a little heroine worship but it appears to be confined only to factual characters of the Florence Nightingale type. Both boys and girls read a lot of verse at this age.

Male:

Cathersall, A.	Sea wolves	Dent
Forester, C.S.	Hornblower	Joseph
Hallard, P.	Coral reef castaway	Phoenix
Johns, W.E.	Biggles	Hodder & S.
Knight, F.	He sailed with Blackbeard	Macmillan
Black, I.	The real book of ships	Dobson
Bong, G.	The Baden-Powell story	Staples
De la Mare	Come hither	Constable

Female:

Bagnold, E.	National Velvet	Heinemann
Bruce, M.G.	Billabong (stories)	
Carroll, L.	Alice in Wonderland	Macdonald
Coolidge, S.	What Katy did	Blackie
Perkins, L.F.	Twin (books)	Cape
Spyri, J.	Heidi	Collins
Bigland, E.	True book about Sister Kenny	Muller
Cousins, M.	More about the saints	Hutchinson
Paver, I.M.	Legends from the outback	Dent

ELEVEN YEARS

"Children of this age are interested in every new thing that comes before them. However, they are becoming slightly more critical as to the style of the writing than before, although they are not articulate enough, nor is this critical faculty well enough developed yet, to be able to judge what is wrong with what they read. They can say they 'don't like' a book, but rarely give any concrete reason as to the dislike. Particular new interests that are appearing are books about careers and books linked with their outside interests or sports. But it should be emphasised that the eleven year old who is a keen reader will read anything at all that takes his eye.

Male:

Buckeridge, A.	Jennings	Collins
Defoe, D.	Robinson Crusoe	Dent
Puce, W.	Amazon adventure	Cape
Stevenson, R.L.	Treasure island	Dent
Twain, M.	Tom Sawyer	Macmillan
Wyss, J.	Swiss family Robinson	Dent
Baily, C.	The earth is your spaceship	Faber
Neuberger, R.	Royal Canadian Mounted Police	Macdonald
Wheatley, P.	Cricket do it this way	Murray

Female:

Brown, P.	Family playbill	Nelson
Fidler, K.	Brydons	Lutterworth
Hill, L.	Ella joins the Wells	Evans
Nesbit, E.	The railway children	Benn
Seredy, K.	The good master	Harrap
Kyle, E.	Queen of Scots	Nelson
Laskie, M.	Cookery	C.U.P.
Nuttall, P.	Nursing as a career	Batsford

Mrs. P. Morris of the Kwinana Library also prepared an anlysis of the most popular books among the age-groups represented in this study. Her list is included here to show the similarities and the emphasis on some of the classics in children's literature.

"AGE GROUP 8-9 YEARS:

Non-fiction:

Boys and girls:

Poetry
Nursery rhymes
Animal stories in pictures
Bible stories in pictures

Fiction:

Boys:	Ardizzone, Edward.	"Tim all alone"
	" "	"Tim & Charlotte"
	Kipling, Rudyard.	"Jungle book"
		"Just so stories"
	Scott, Will.	"The Cherrys series"
	Blyton, Enid.	"Brer Rabbit stories"
	Perkins, Lucy Fitch.	"Twins Series"
Girls:	Grimm, Jacob & Willhelm.	"Fairy tales"
	Andersen, Hans Christian.	"Fairy tales"
	Uttley, Alison.	"Toad's castle"
	Vallance, Rosalind.	"Timmy & Bingo"
	" "	"Timmy & Roger"
	Ardizzone, Edward	"Tim all alone"
	" "	"Tim & Charlotte"
	Berrisford, Judith M.	"Son of Taff"
		"Trot home Sally"

"AGE GROUP 10-11 YEARS:

Non-fiction:

Boys:	Hopfinger, Kurt B.	"Boys' book of motors"
	Leroi, David.	"Boys' book of flight"
		"Hobbies for boys"
		"Alexander the Great"
		"Buffalo Bill"
		"Daniel Boone"
	Lomark, Milton.	"St. Isaac & the Indians"
		"Boys' book of carpentry"
		"Puppetry"
Girls:		"Legends & Tales"
		"Greek myths"
		"Handicrafts"
		"Ballet"
		"Horse-riding"
		"Horses"
		"Girl guides"
		"Brownies"

Fiction:

Boys:	Stevenson, R.L.	"Treasure Island"
	Defoe, Daniel.	"Robinson Crusoe"
	Twain, Mark.	"Tom Sawyer"
	" "	"Huckleberry Finn"
	Dixon, Rex.	"Pocomoto series"
	Johns, Capt. W.E.	"Biggles series"
	Richards, Frank.	"Billy Bunter series"
Girls:	Enright, Elizabeth.	"Gone away lake"
	" "	"Then there were five"
	Biggs, Margaret.	"New girl at Malling"
	Gervaise, Mary.	"Fireworks at Farthingale"
	" "	"Farthingale fete"
	James, Grace.	"John and Mary series"
	Blyton, Enid.	"Famous five series"
	" "	"Adventure series"
	Hill, Lorna.	"The little dancer"
	" "	"Dancing Peel"
	Brown, Pamela.	"Back stage portrait"
	" "	"Maddy alone"
	" "	"The windmill family"

Occupational Choices in the Two Australian Schools

The distribution of the most popular occupational choices of the third, fourth, fifth, and sixth grade pupils in the two Australian schools is compared in Table 38 with the distribution of choices in a relatively large sample of U.S.A. children drawn from the same grades and from the same larger culture as the U.S.A. comparison group.

Comparing the two groups of boys, we note that the U.S.A. boys more frequently than the Australian boys chose such occupations as artist, professional athlete, engineer, medical doctor, minister or missionary, scientist, and veterinarian. The Australian boys compared with the U.S.A. boys chose more frequently such occupations as construction worker, farmer or rancher, mechanic, electrician, truck or bus driver, and teacher.

Table 38

Comparison of Most Popular Occupational Choices or Aspirations of Australian and U.S.A.
SAMPLES BY SEX

Occupation	Australian Boys (N=389)	Australian Girls (N=327)	U.S.A. Boys (N=2164)	U.S.A. Girls (N=2038)
Actor, actress, entertainer	0.3%	0.9%	0.4%	1.8%
Air hostess, steward, etc.	0.0	0.0	0.0	3.8
Artist, cartoonist, etc.	0.8	0.9	2.3	2.2
Athlete, professional	4.5	2.4	10.1	0.2
Barber, beautician	0.3	5.1	0.2	1.6
Construction workers, builder	4.6	0.0	2.2	0.0
Engineer	2.3	0.0	6.8	0.0
Farmer, rancher, herder, etc.	18.8	7.8	5.9	1.5
Housewife	0.0	1.2	0.0	7.4
Lawyer	1.3	0.0	3.6	0.6
Mechanic, electrician, etc.	4.3	0.0	2.8	0.1
Medical doctor	1.8	1.8	9.2	3.0
Military, soldier, sailor, etc.	6.7	0.0	6.1	0.0
Minister, priest, rector, etc.	0.0	1.2	1.7	2.7
Musician, singer, etc.	0.3	0.6	0.7	1.6
Nurse	0.5	29.4	0.1	26.4
Operator, truck, bus, etc.	4.3	0.0	2.8	0.1
Pilot, astronaut	6.5	0.0	5.3	0.1
Police, detective, etc.	3.3	0.6	3.8	0.4
Scientist, chemist, etc.	3.8	1.2	8.2	2.6
Secretary, typist, etc.	0.5	7.5	0.0	6.9
Teacher	6.3	17.7	2.1	30.4
Undecided	7.0	9.6	10.3	6.3
Veterinarian	0.0	0.0	2.6	2.5
Other occupations	21.8	12.1	46.7*	25.3*

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* Some of the U.S.A. subjects expressed more than one choice.

Among the girls, it will be noted that the Australian girls more frequently chose such occupations as professional athlete, beautician, and farmer or rancher. The U.S.A. girls more frequently chose airline hostess, artist, housewife, medical doctor, missionary, musician, veterinarian, and teacher. Teaching is still a popular choice among the Australian girls but not as popular as among their U.S.A. counterparts. Nursing is about equally popular among Australian and U.S.A. girls.

One general observation is that the Australian children chose fewer creative, unconventional, artistic, and scientific occupations than did the U.S.A. children. The difference in the status of teaching as a choice in the two groups is interesting and may possibly be influenced by the fact that one half of the teachers in both of the Australian elementary schools were men, while male teachers are much more rare in elementary schools in the U.S.A.

Creative Development in the Two Australian Schools

Performance on Figural Tests of Creative Thinking

As in all other comparisons, the scores on the three figural tests were combined to obtain total fluency, flexibility, originality, and elaboration scores. The results of these procedures are reported in Table 39 for the total Australian sample and the U.S.A. Comparison group. At first glance, two rather obvious observations can be made. First, the Australian children's performance is consistently lower than that of their U.S.A. counterparts. Second, the Australian children show almost no growth on fluency, flexibility, and originality during the time they are in elementary school. While the development of ability to elaborate is a somewhat up and down matter, they begin showing a little growth in the fourth grade and make still further progress in the fifth and sixth grades. It is interesting that the one area of growth is in elaboration and that other studies (Wodtke, 1963; Torrance and Gupta, 1964) show that the only kind of creative growth that seems to take place under high controlling, traditional methods of teaching is in this respect. The Australian teachers, on the whole, would appear to qualify as high controlling and traditional in their approaches.

The tests of significance of the differences in the means of the Australian and U.S.A. Comparison samples are shown in Table 40. It will be noted that 22 of the 24 tests revealed statistical significance in favor of

Table 39

Means and Standard Deviations by Grade of Australian and U.S.A. Comparison Group Sample on Figural Tests of Creativity

Sample and Grade		No.	Fluency		Flexibility		Originality		Elaboration	
			Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A.	1st.	72	13.80	4.12	11.07	3.14	11.78	8.31	45.92	17.92
Australian	1st.	233	11.04	3.88	9.44	2.87	9.93	4.81	34.52	13.20
U.S.A.	2nd.	123	17.33	5.27	12.99	3.16	14.75	7.75	56.94	17.72
Australian	2nd.	195	12.49	3.80	10.69	2.83	8.95	3.85	39.26	15.94
U.S.A.	3rd.	131	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
Australian	3rd.	291	10.27	2.69	9.20	2.16	6.03	3.24	30.33	12.42
U.S.A.	4th.	72	15.83	4.22	12.63	3.22	13.04	6.97	46.82	15.23
Australian	4th.	196	11.26	3.84	10.10	3.22	8.48	5.26	38.47	16.40
U.S.A.	5th.	145	16.91	5.50	13.64	4.19	19.29	8.46	55.85	18.36
Australian	5th.	191	12.25	6.10	11.12	5.44	9.89	3.85	44.45	11.95
U.S.A.	6th.	73	17.45	4.89	13.68	3.58	18.20	8.19	66.10	18.99
Australian	6th.	240	11.71	3.13	10.69	3.24	9.38	6.75	46.16	16.87

Table 40

Tests of Significance of the Differences in Means of the Australian and U.S.A. Comparison Group Samples on the Figural Tests of Creative Thinking

Grade	Fluency		Flexibility		Originality		Elaboration	
	t-ratio	p	t-ratio	p	t-ratio	p	t-ratio	p
1st.	6.84	$<.01$	3.88	$<.01$	2.37	$<.05$	5.88	$<.01$
2nd.	9.68	$<.01$	6.61	$<.01$	9.67	$<.01$	9.02	$<.01$
3rd.	2.59	$<.01$	1.90	NS	2.42	$<.05$	2.81	$<.01$
4th.	8.02	$<.01$	1.20	NS	3.56	$<.01$	3.90	$<.01$
5th.	7.39	$<.01$	5.14	$<.01$	15.16	$<.01$	7.55	$<.01$
6th.	11.71	$<.01$	2.60	$<.01$	9.28	$<.01$	8.04	$<.01$

Note: All differences are in favor of the U.S.A. Comparison Group.

the U.S.A. group. Only on Flexibility in the third and fourth grades do the differences fail to reach statistical significance and in most cases at a very high level of confidence.

The tests of linearity are summarized in Table 41. It will be noted that in all of the measures the developmental curves departed significantly from linearity. As in the case of the verbal performances of the Negro group, this is caused by a lack of growth rather than slumps at any point. It should be noted, however, that there is a fairly marked slump in the third grade. Since these children were tested near the end of the school year, it may have been that the equivalent of the "fourth grade slump" had already set in. A similar phenomenon has been noted in some unpublished studies of creative development in other schools in the United States.

Table 41

Tests of Linearity of the Developmental Curves of the Western Australian Sample on the Figural Measures of Creative Thinking

Measure	Males		Females		Combined	
	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	6.24	<.01	4.72	<.01	13.26	<.01
Flexibility	5.76	<.01	8.12	<.01	14.26	<.01
Originality	16.40	<.01	18.32	<.01	33.50	<.01
Elaboration	18.25	<.01	15.62	<.01	23.10	<.01

Performance on Verbal Tests of Creative Thinking

Performance on Verbal Tests of Creative Thinking

The means and standard deviations of the Western Australian and U.S.A. Comparison groups on the Ask Questions Test are shown in Table 42. It will be noted that there are year by year gains by the Australians on all of the measures except for a slight dip in originality by the sixth grade. The Australians are also consistently lower than their U.S.A. counterparts on all measures.

Table 42

Means and Standard Deviations by Grade of Western Australian and U.S.A. Comparison Groups on Ask Questions Test

Sample and Grade		N	Fluency		Flexibility		Originality	
			Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U. S. A.	3rd.	79	9.22	4.75	6.58	3.01	10.54	7.51
W. Aus.	3rd.	189	2.84	2.1[illegible]	2.51	1.43	1.96	1.94
U. S. A.	4th.	72	4.51	2.55	3.81	1.66	3.96	3.35
W. Aus.	4th.	198	3.85	1.80	3.48	1.66	3.23	2.40
U. S. A.	5th.	144	7.80	3.95	5.55	2.27	5.61	3.90
W. Aus.	5th.	190	5.57	2.34	4.84	1.93	5.23	3.93
U. S. A.	6th.	73	7.16	3.11	5.75	2.50	5.51	3.89
W. Aus.	6th.	224	5.62	2.77	4.90	2.28	4.74	4.11

Table 43 reports the tests of significance of the differences

Table 43

Tests of Significance of the Differences in Means Between the Western Australian and U.S.A. Comparison Groups on the Ask Questions Test

Grade	Fluency		Flexibility		Originality	
	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	11.47	$< .01$	11.49	$< .01$	10.02	$< .01$
4th.	7.30	$< .01$	1.99	$< .05$	1.70	NS
5th.	6.02	$< .01$	6.37	$< .01$	0.61	NS
6th.	4.01	$< .01$	2.71	$< .01$	1.41	NS

in means between the two samples on the Ask Questions Test. It was found that nine of the twelve differences are statistically significant at the .05 level of confidence or better. The three differences failing to meet statistical significance were in the originality column.

The summary of the results for the Guess Causes Test is presented in Table 44. Again, it will be noted that on all three measures the Australians score year by year gains and that they score consistently lower than the U.S.A. children.

Table 44

Means and Standard Deviations by Grade of Western Australian and U.S.A. Comparison Groups on Guess Causes Test

Sample and Grade		N	Fluency		Flexibility		Originality	
			Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U. S. A.	3rd.	79	4.03	4.36	3.01	1.58	4.62	3.72
W. Aus.	3rd.	189	1.98	1.21	1.58	1.01	1.66	2.05
U. S. A.	4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
W. Aus.	4th.	198	2.49	1.95	1.77	1.15	2.07	2.78
U. S. A.	5th.	144	5.08	4.14	3.19	1.92	4.69	4.47
W. Aus.	5th.	190	3.10	2.20	2.20	1.38	2.66	3.28
U. S. A.	6th.	73	4.77	2.71	2.84	1.18	5.33	3.95
W. Aus.	6th.	224	3.60	1.99	2.46	1.22	3.00	3.46

The tests of significance as shown in Table 45 all show

Table 45

Tests of Significance of Differences in Means of Western Australian and U.S.A. Comparison Groups on Guess Causes Test

	Fluency		Flexibility		Originality	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	4.11	< .01	7.45	< .01	6.67	< .01
4th.	6.12	< .01	9.64	< .01	4.28	< .01
5th.	5.21	< .01	5.25	< .01	4.59	< .01
6th.	3.40	< .01	2.34	< .01	4.83	< .01

differences in favor of the U.S.A. group at the .01 level of confidence or better.

The results for the Guess Consequences parallel those presented for Guess Causes, as shown in Table 46.

Table 46

Means and Standard Deviations by Grade of Western Australian and U.S.A. Comparison Groups on Guess Consequences Test

Sample and Grade		Fluency		Flexibility		Originality	
	N	Mean	S. Dev.	Mean	St. Dev.	Mean	St. Dev.
U. S. A. 3rd.	79	6.19	3.36	4.05	1.89	8.70	6.52
W. Aus. 3rd.	189	2.15	1.37	1.59	0.97	2.12	2.03
U. S. A. 4th.	72	3.24	2.09	2.50	1.46	3.99	2.93
W. Aus. 4th.	198	3.07	2.02	2.28	1.44	2.91	3.12
U. S. A. 5th.	144	6.04	4.12	3.58	2.20	5.75	4.98
W. Aus. 5th.	190	4.05	2.26	2.61	1.25	3.74	4.18
U. S. A. 6th.	73	5.16	2.14	3.59	1.40	5.77	3.51
W. Aus. 6th.	224	4.58	2.50	2.87	1.51	4.17	4.45

The tests of significance of the differences in means of the two groups for Guess Consequences are shown in Table 47. Here nine of the twelve tests yielded significance at the .05 level of confidence or above, all in favor of the U.S.A. group.

Table 47

Tests of Significance of Differences in Means of Western Australian and U.S.A. Comparison Groups on Guess Consequences Test

	Fluency		Flexibility		Originality	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	10.34	< .01	10.99	< .01	8.79	< .01
4th.	0.60	NS	1.11	NS	2.56	< .05
5th.	5.24	< .01	4.55	< .01	3.94	< .01
6th.	1.71	NS	3.43	< .01	3.14	< .01

The means and standard deviations of the Australian and U.S.A. Comparison groups on the Product Improvement Test are shown in Table 48.

Table 48

Means and Standard Deviations by Grade of Western Australian and U.S.A. Comparison Groups on Product Improvement Test

Sample and Grade		N	Fluency		Flexibility		Originality	
			Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U. S. A.	4th.	72	7.62	4.18	3.75	1.62	6.49	5.63
W. Aus.	4th.	198	5.07	3.70	3.65	1.74	2.52	3.21
U. S. A.	5th.	144	9.30	5.23	4.45	1.89	8.65	6.79
W. Aus.	5th.	190	4.98	2.88	3.01	1.48	1.97	2.30
U. S. A.	6th.	73	10.76	4.98	5.25	1.76	9.11	5.76
W. Aus.	6th.	224	5.68	3.09	3.59	1.64	2.53	3.42

It will be noted that the U.S.A. children again consistently achieved higher mean scores than their Australian counterparts. On all three scores there is a slight drop in the fifth grade, detracting from an otherwise linear trend in development.

The tests of significance of the differences in means presented in Table 49 reveal significance on eight of the nine cases, all in favor of the U.S.A. Comparison group.

Table 49

Tests of Significance of the Differences in Means of Western Australian and U.S.A. Comparison Groups on Product Improvement Test

	Fluency		Flexibility		Originality	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p
4th.	4.83	< .01	0.43	NS	5.66	< .01
5th.	8.94	< .01	7.56	< .01	11.33	< .01
6th.	8.22	< .01	7.40	< .01	9.25	< .01

Table 50 presents the means and standard deviations achieved

Table 50

Means and Standard Deviations by Grade of Western Australian and U.S.A. Comparison Groups on Unusual Uses Test

Sample and Grade	N	Fluency		Flexibility		Originality	
		Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U. S. A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
W. Aus. 4th.	198	2.99	2.18	2.41	1.70	3.38	3.26
U. S. A. 5th.	144	10.95	9.04	5.08	3.43	9.58	8.54
W. Aus. 5th.	190	2.90	2.07	2.37	1.54	2.72	3.54
U. S. A. 6th.	73	11.34	6.10	4.82	2.30	7.11	6.05
W. Aus. 6th.	224	3.54	2.45	2.73	1.60	4.06	5.01

by the two samples on the Unusual Uses Test. Again, the trend is linear except for slight drops in the fifth grade.

The tests of significance in the means of the Unusual Uses Test are shown in Table 51 and are all statistically significant at the .01 level except for originality in the fourth grade.

Table 51

Tests of Significance of Differences in Means of Western Australian and U.S.A. Comparison Groups on Unusual Uses Test

	Fluency		Flexibility		Originality	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p
4th.	4.85	< .01	4.77	< .01	1.02	NS
5th.	10.48	< .01	8.84	< .01	9.07	< .01
6th.	10.65	< .01	7.22	< .01	3.89	< .01

Table 52 presents the means, standard deviations, and tests of

Table 52

Means, Standard Deviations, and Tests of Significance of Differences in Means of Western Australian and U.S.A. Comparison Groups on Consequences Test

Sample		Fluency			Originality		
and Grade	N	Mean	St. Dev.	t-Ratio	Mean	St. Dev.	t-Ratio
U. S. A. 5th.	144	7.37	3.40		4.51	3.35	
W. Aus. 5th.	190	3.17	2.41	12.62**	2.42	2.90	5.11**
U. S. A. 6th.	73	8.04	3.66		5.51	4.12	
W. Aus. 6th.	224	4.48	2.65	7.68**	2.45	2.96	5.87**

** Indicates differences in means are significant at the .01 level.

significance in means of the Australian and U.S.A. Comparison groups on the Consequences Test. It will be seen that all of the differences are in favor of the U.S.A. Comparison group and that all of them are statistically significant at the .01 level or better.

Table 53 presents the tests of linearity in the mean profiles of the Western Australians on the verbal tests of creative thinking. When the sexes are combined, none of the three mean profiles departs from linearity. This is also true of the profiles for the males and for fluency and originality among the females. Thus, it may be said that there are significant year by year gains by the Western Australian sample on the verbal measures of creative thinking. The overall picture during this period from the third to the sixth grade is one of growth.

Table 53

Tests of Linearity of Mean Profiles of Western Australian Group on Verbal Tests of Creative Thinking

	Male		Female		Sexes Combined	
Measure	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	2.64	NS	0.00	NS	2.89	NS
Flexibility	0.00	NS	3.72	< .05	2.78	NS
Originality	2.43	NS	0.00	NS	0.00	NS

Some Comparisons of the Two Australian Schools

Using an earlier developed but basically similar scoring system, Eastwood (1961) compared the two Australian schools and also carried out limited follow-up work with the urban school (Eastwood, 1963, 1964a). Since both of these sets of studies are themselves complex, only the principal results will be summarized.

In the comparison of the rural and urban schools, there emerged a general tendency for the performances of the children in the urban school to surpass that of the children in the rural school, as will be seen from Figures 9, 10, 11, and 12.

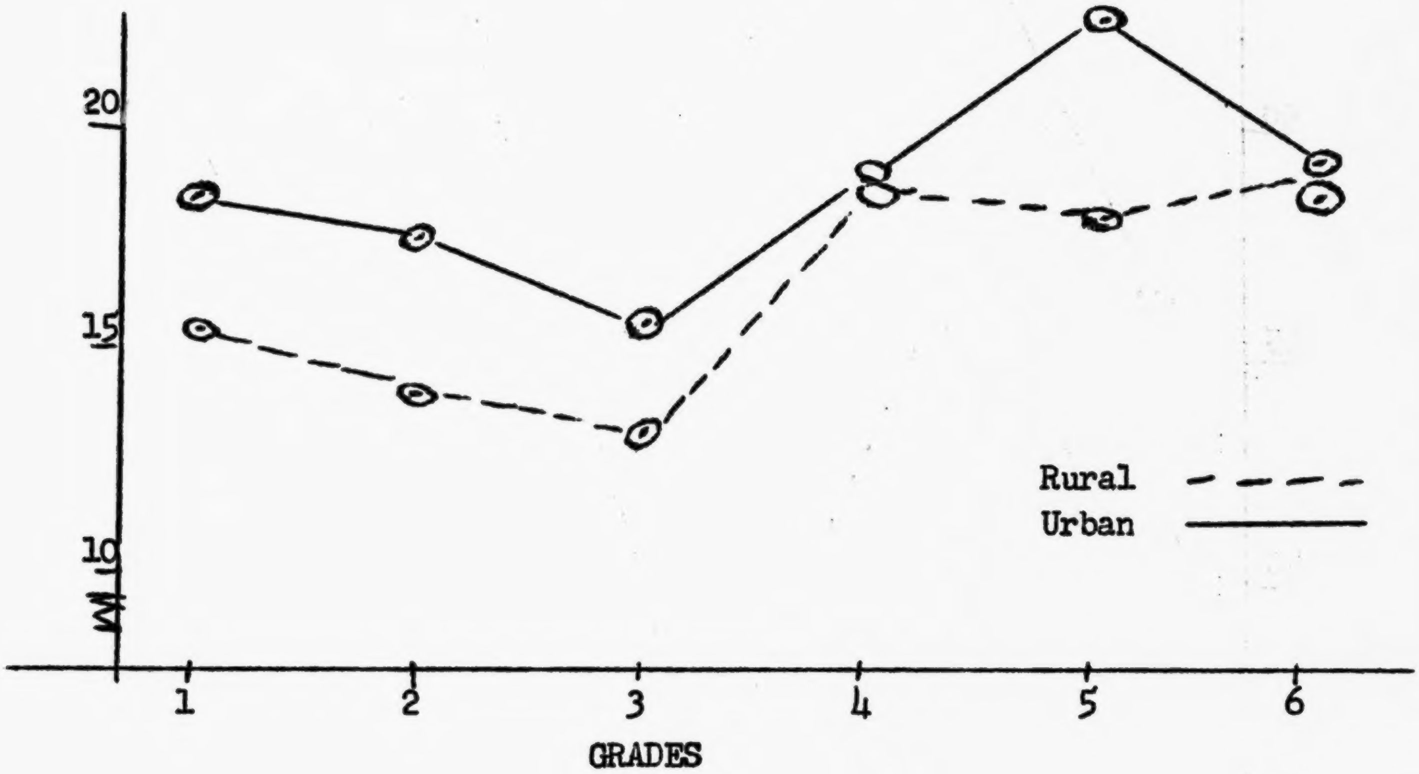

Figure 9. Mean Profiles of Total Figural Originality Scores in Rural and Urban Australian Schools (Eastwood, 1961)

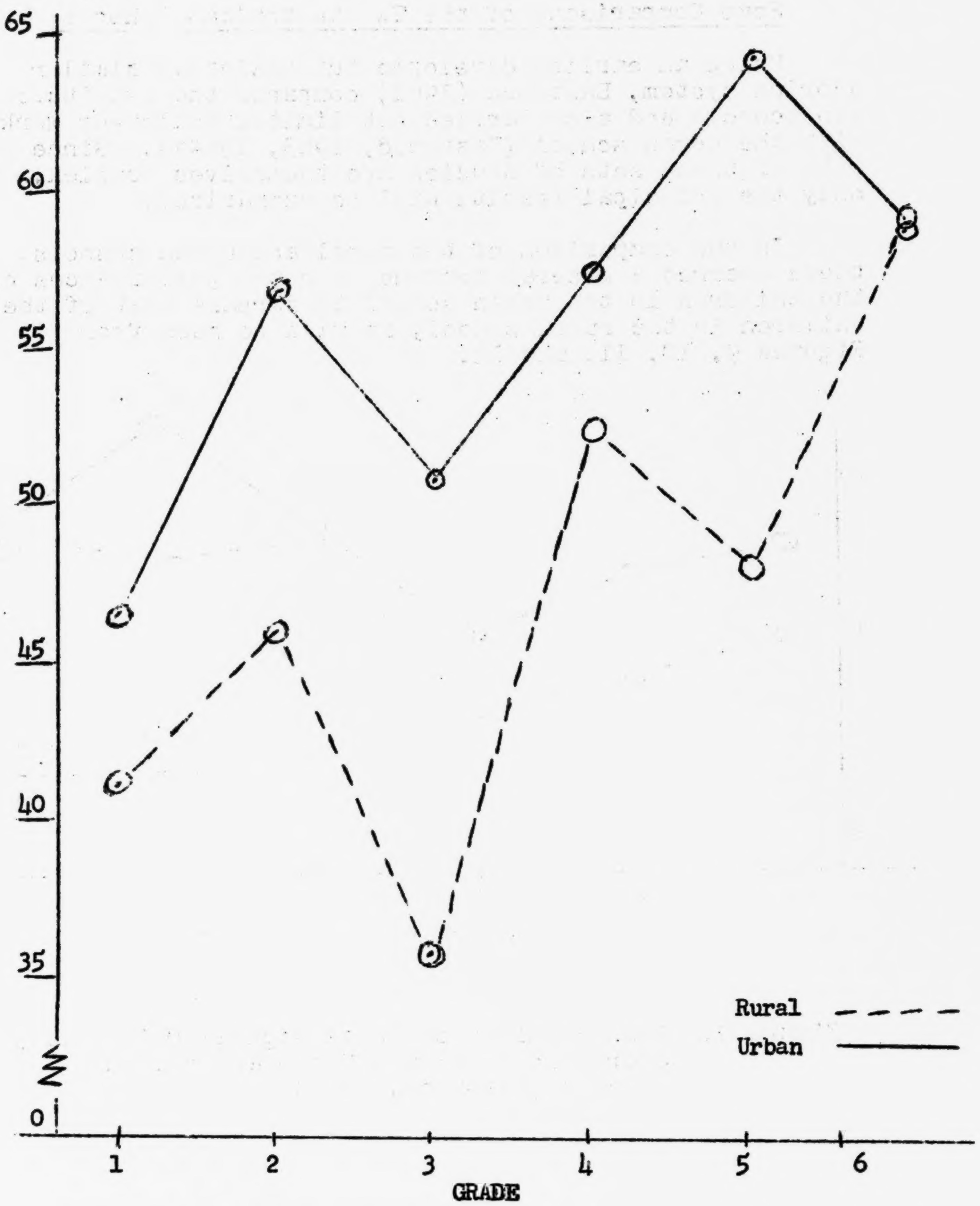

Figure 10. Mean Profiles of Total Figural Elaboration in Rural and Urban Australian Schools (Eastwood, 1961)

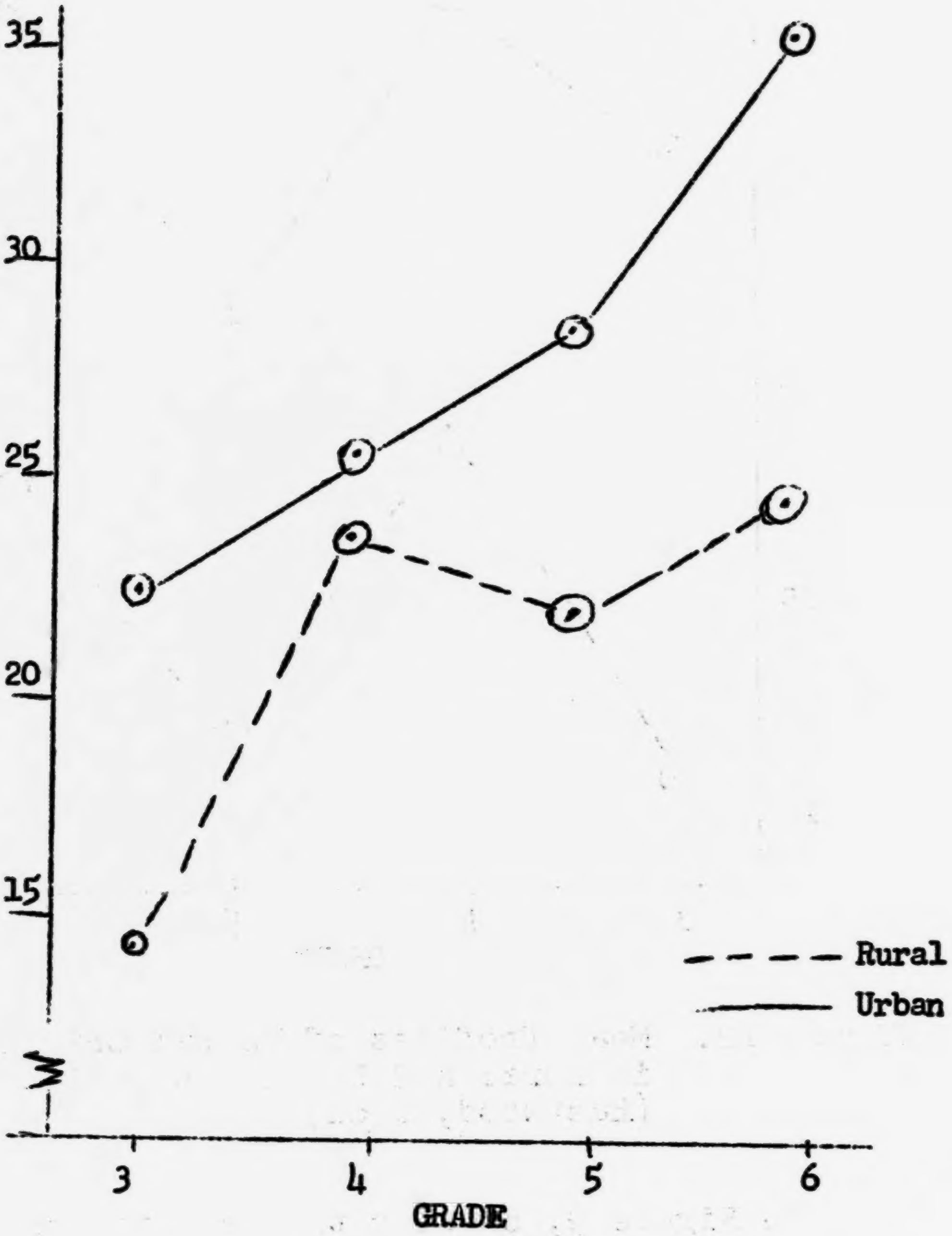

Figure 11. Mean Profiles of Verbal Fluency Scores in Rural and Urban Australian Schools (Eastwood, 1961)

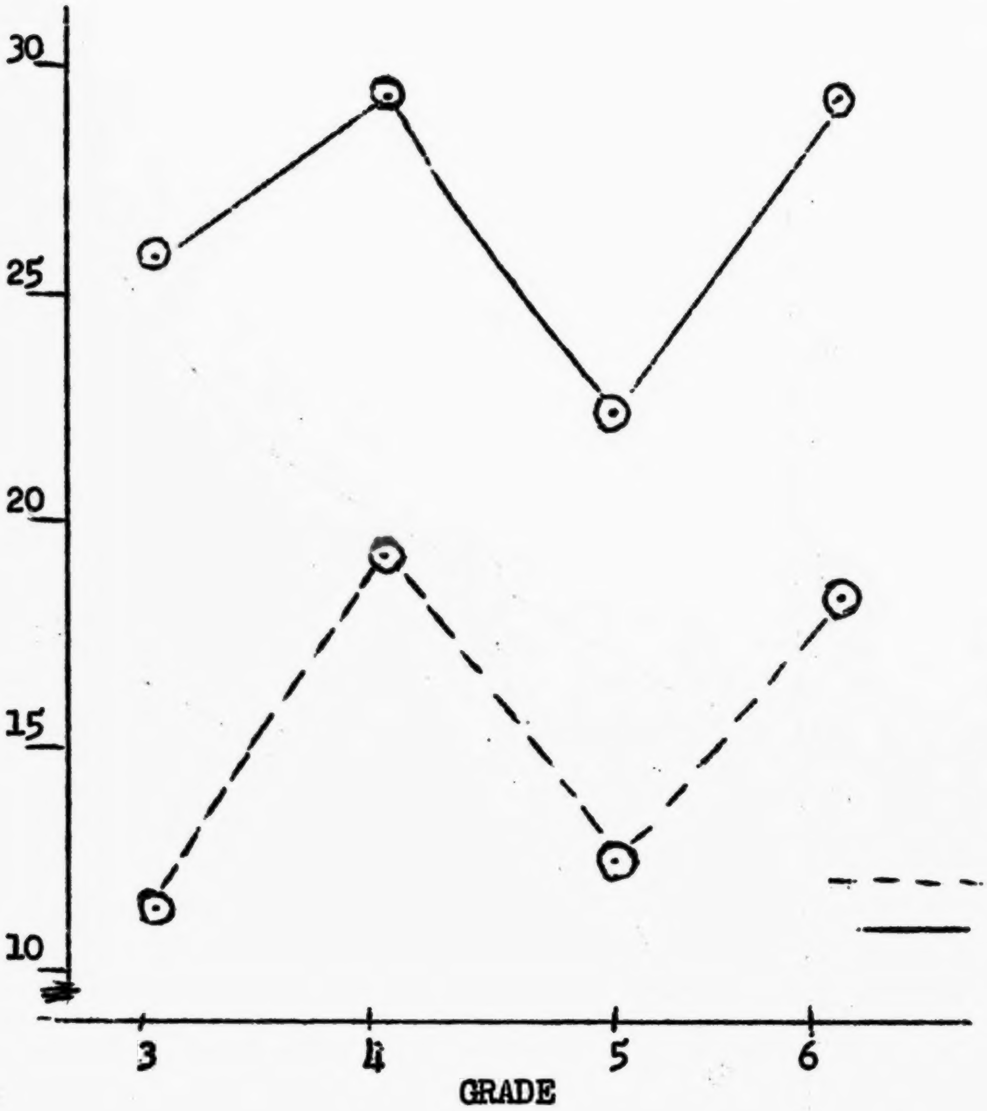

Figure 12. Mean Profiles of Verbal Originality Scores in Rural and Urban Australian Schools (Eastwood, 1961)

In Figure 9, showing the results for Figural Originality, it will be noted that the two developmental curves run almost parallel except at the fourth and sixth grades where the means of the two groups are almost identical. Both groups experienced a slump in the third grade.

In Figure 10, the results for Figural Elaboration show a consistent trend in favor of the urban group except in the sixth grade. The urban groups slumped in the third and sixth grades while the rural children slumped in the third and fifth grades.

The profiles for Verbal Fluency shown in Figure 11 show a very different trend in the sixth grade and it is in the fourth grade that the two curves almost coincide.

There is a linear trend in the profile for the urban school but not for the rural school. The rural school shows a drop between the fourth and fifth grades with only slight recovery in the sixth.

The profiles for Verbal Originality shown in Figure 12 are almost parallel throughout with definite superiority for the urban children. The slump in the fifth grade is quite sharp in both schools.

In explaining the differences in performance of the children in the urban school and the rural school in this study, Eastwood (1964a) suggested that since the rural town studied is one of the older centers of Western Australia, it may tend to be more conservative and hence more conducive of conformity. He also suggested that the population drift from country to city may tend to take from rural centers many of the more enterprising and adventuresome people. He also explained that the particular suburban area in which the urban school is located has developed rapidly during the past decade and hence probably has among its population a larger than usual proportion of enterprising parents who are likely to be less conservative and more divergent in habit and outlook.

Eastwood (1963) became especially interested in certain facets of the ability to elaborate as assessed by the Picture Construction test and retested the children in the urban school in 1963 about two and one-half years after the original testing. The results shown in Figure 13 report the major findings of this study. Eastwood's hypothesis that the high level of elaboration displayed by the first and second grades in the 1960 study would be maintained throughout the vicissitudes that bring about a slump at about that time was supported in a large measure. It will also be noted that the general level of performance throughout the school in this respect is higher in 1963 than in 1960.

Eastwood (1964b), while on the faculty of the University of New England in Western Australia, also administered Figural Form A of the Torrance Tests of Creative Thinking to the pupils enrolled in an elementary school in the town where the University is located. In spite of the fact that the school enrolled a large number of children whose parents were on the University staff, the ability level of the school seems to be about average with a mean Intelligence Quotient of 100.3 in grades four through six. Concurrently, Torrance (1966a) administered the same battery to samples of children in

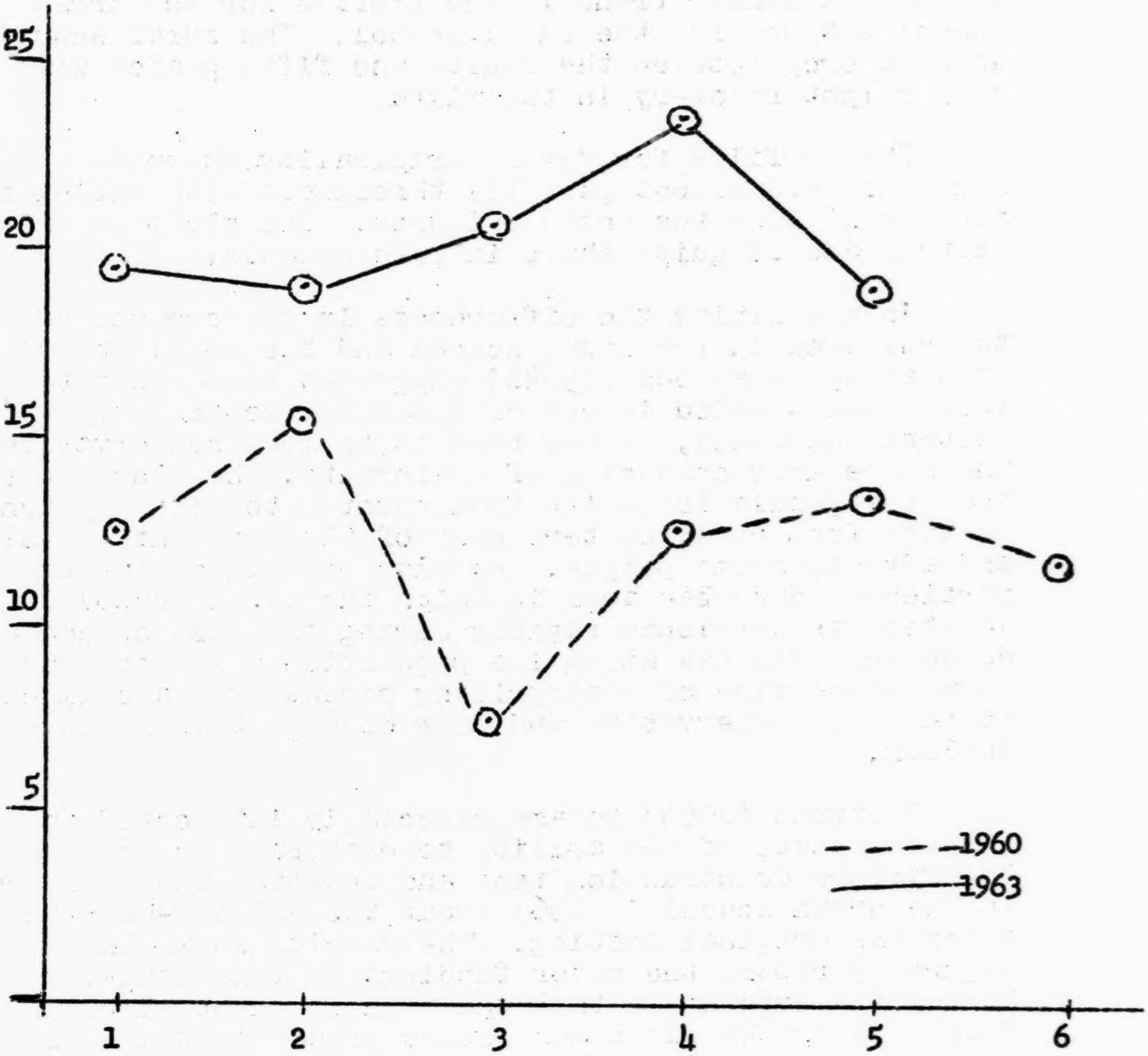

Figure 13. Mean Elaboration Profile on Picture Construction Test in the Same Australian Urban School in November 1960 and June 1963 (Eastwood, 1963)

a Southern California, U.S.A., school system and these data are available for comparison with Eastwood's.

The mean profiles on fluency are plotted in Figure 14. First, it will be noted that both groups experienced a distinct slump in the fourth grade. In this case, the tests were administered near the beginning of the school term rather than near the end, as in the case of the original study in the other two schools in Western Australia. Second, it will be noted that on the whole the Australian children performed about as well as their California counterparts. The Australian children showed a rather marked drop in the second grade, not observed in the California sample.

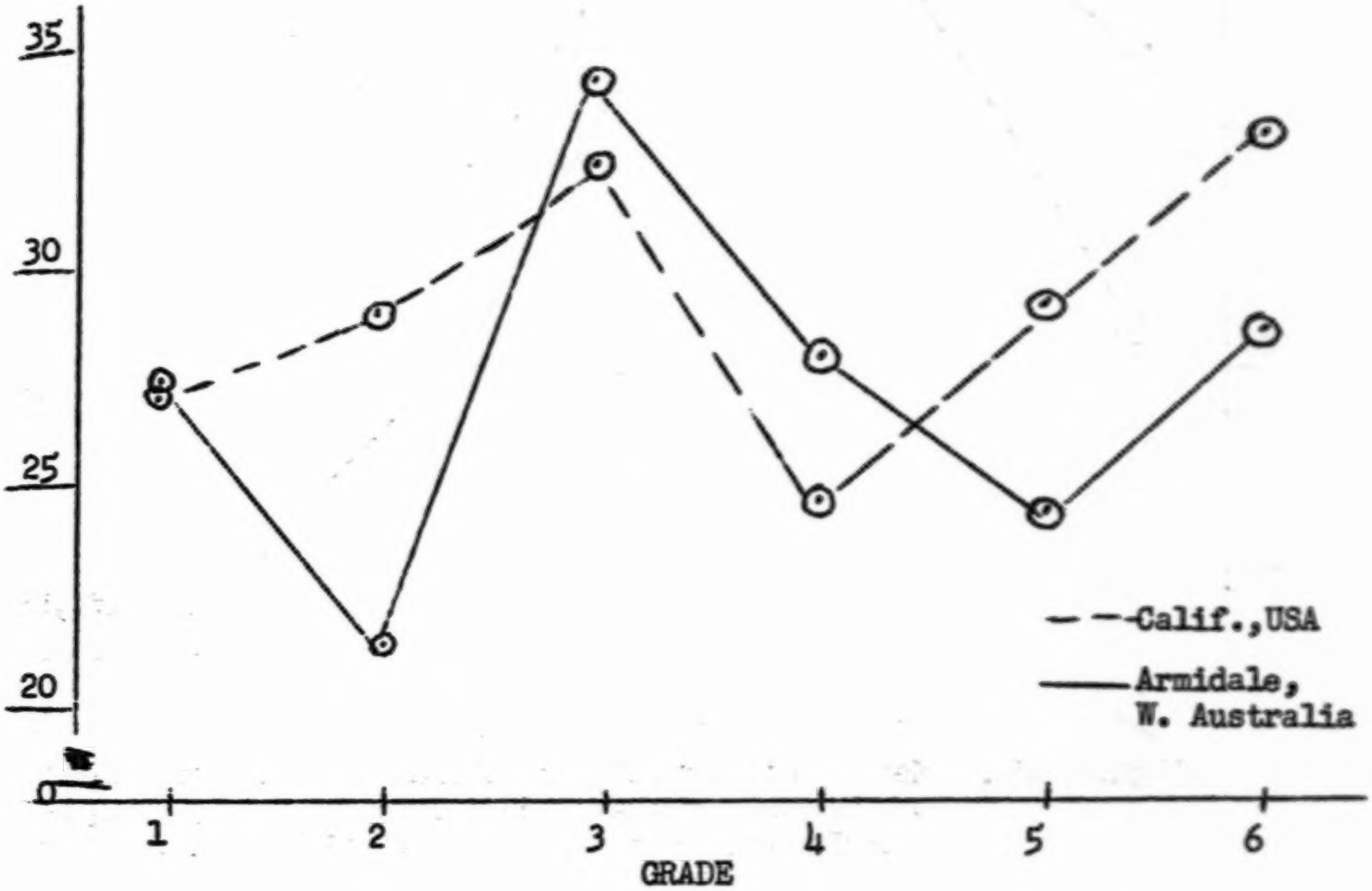

Figure 14. Mean Fluency Profiles on Figural Tests of Eastwood's Armidale, Australia, Sample and Torrance's Southern California Sample

The mean figural originality profiles for the two samples are shown in Figure 15. In this Figure, it will be noted that the Australian children showed a slight superiority over the California children during the first two years. Both groups experienced a slump between the third and fourth grades. The slump among the Australian children was more severe than among the California children and persisted through the sixth grade.

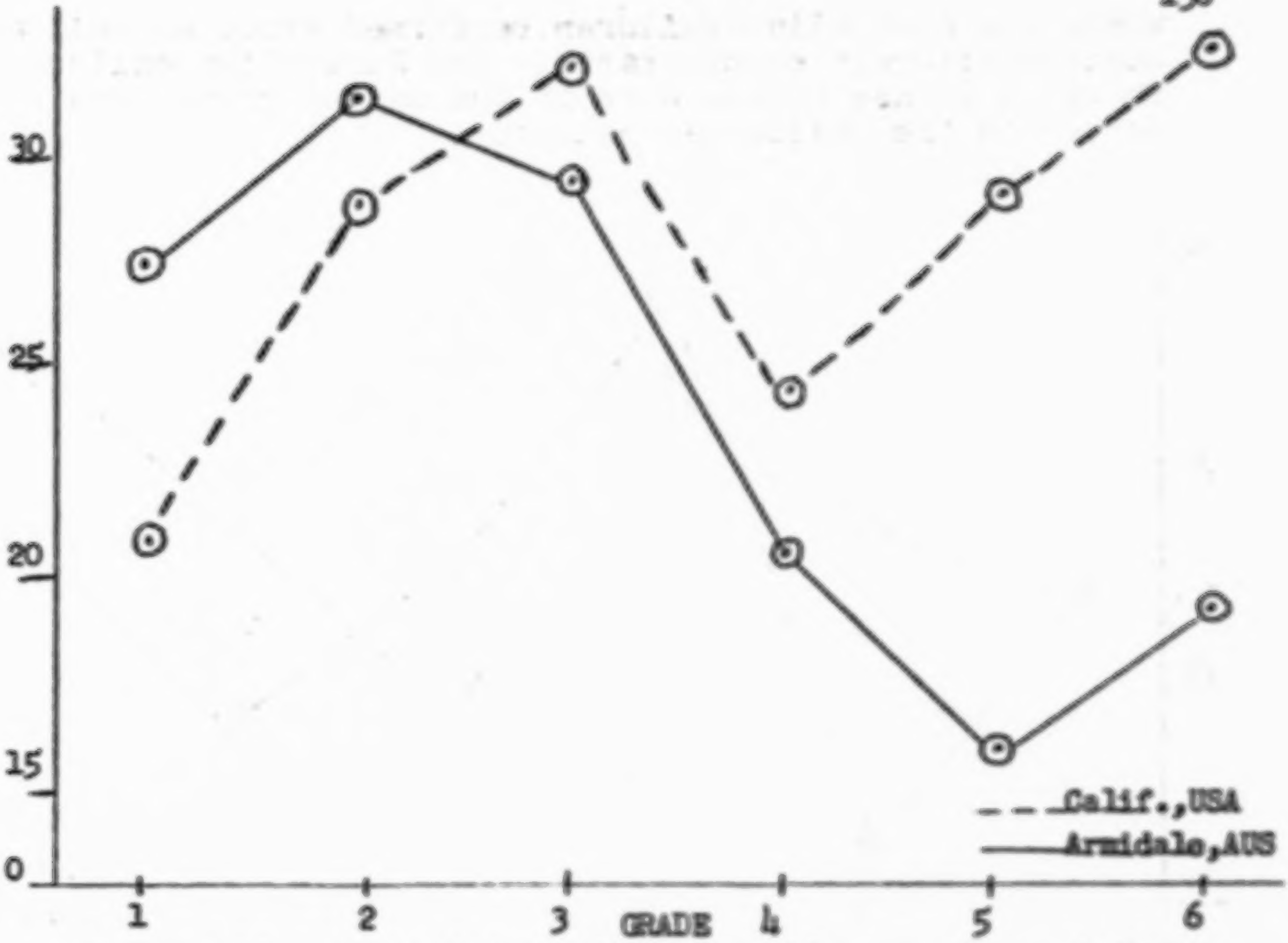

Figure 15. Mean Originality Profiles on Figural Tests of Eastwood's Armidale, Australia, Sample and Torrance's Southern California Sample

The scoring method employed by Eastwood was somewhat different from that employed by Torrance, so comparisons cannot be made between the two samples. Figure 16, however, presents Eastwood's data on elaboration. Here we see a very sharp and distinct slump in the fourth grade with some recovery during each of the subsequent years.

These data underscore the existence of the fourth grade slump among children in Australia and suggest that this may be characteristic of the dominant culture of English-speaking countries. These data also indicate that the superiority of children in the United States is not as clear as it seemed to be in the study conducted as a part of this project. Data concerning the culture represented by this school are quite limited and give little basis for further hypothesizing about the relationship between culture and creative functioning, or in understanding the fourth grade slump.

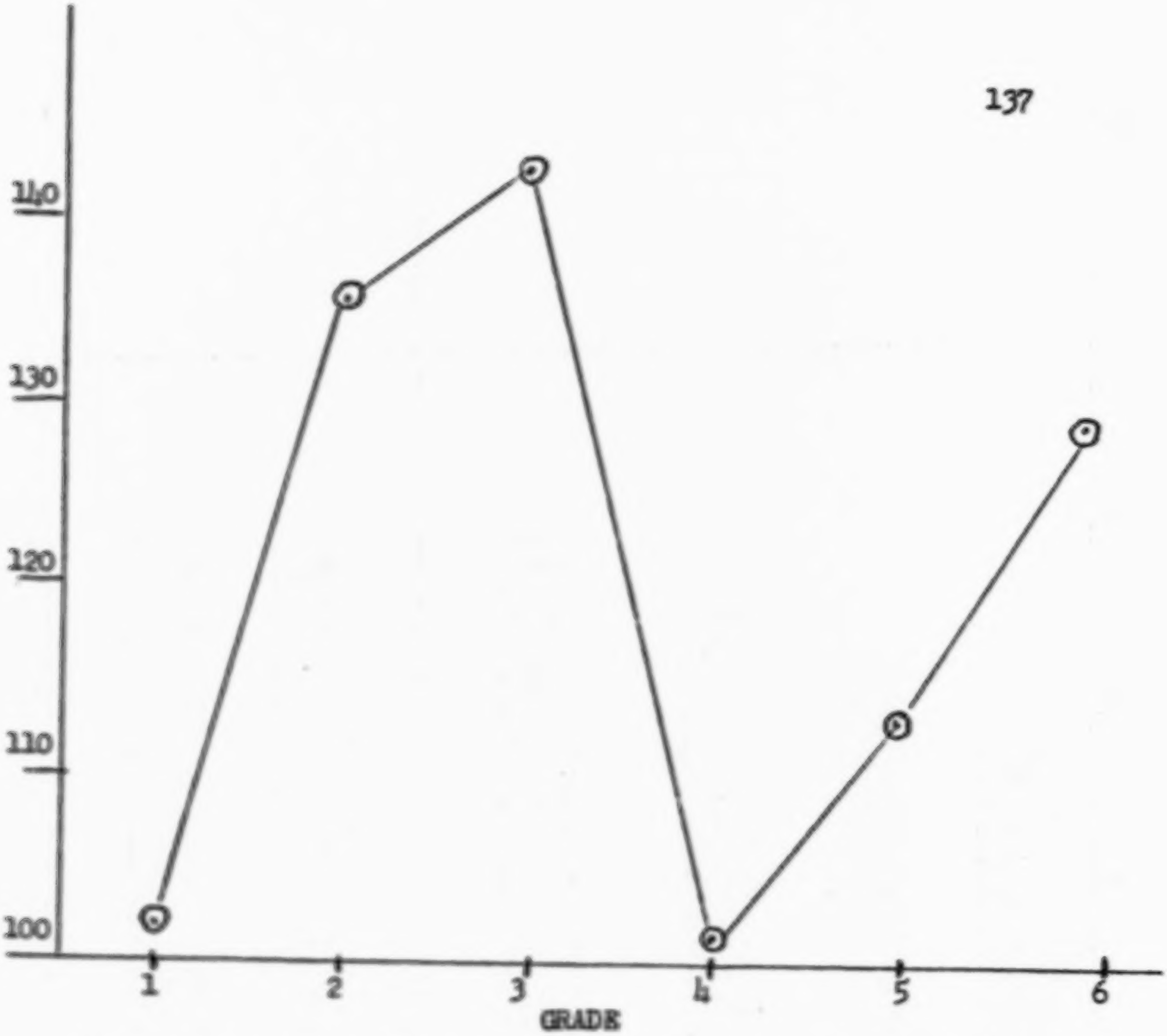

Figure 16. Mean Elaboration Profile on Figural Tests of Eastwood's Armidale, Australia, Sample

Relative Level of Functioning on the Measures of Creative Thinking

In order to compare the relative level of functioning in the Australian sample, the mean scores were converted to standard scores based on the U.S.A. comparison group data. Figure 17 presents this comparative analysis for the fourth grade. Although it will be noted that all of the Figural measures are below the mean, ranging from slightly over a standard deviation below the mean to one-half standard deviation below the mean, the Australian children perform comparatively better on elaboration and most poorly on figural fluency.

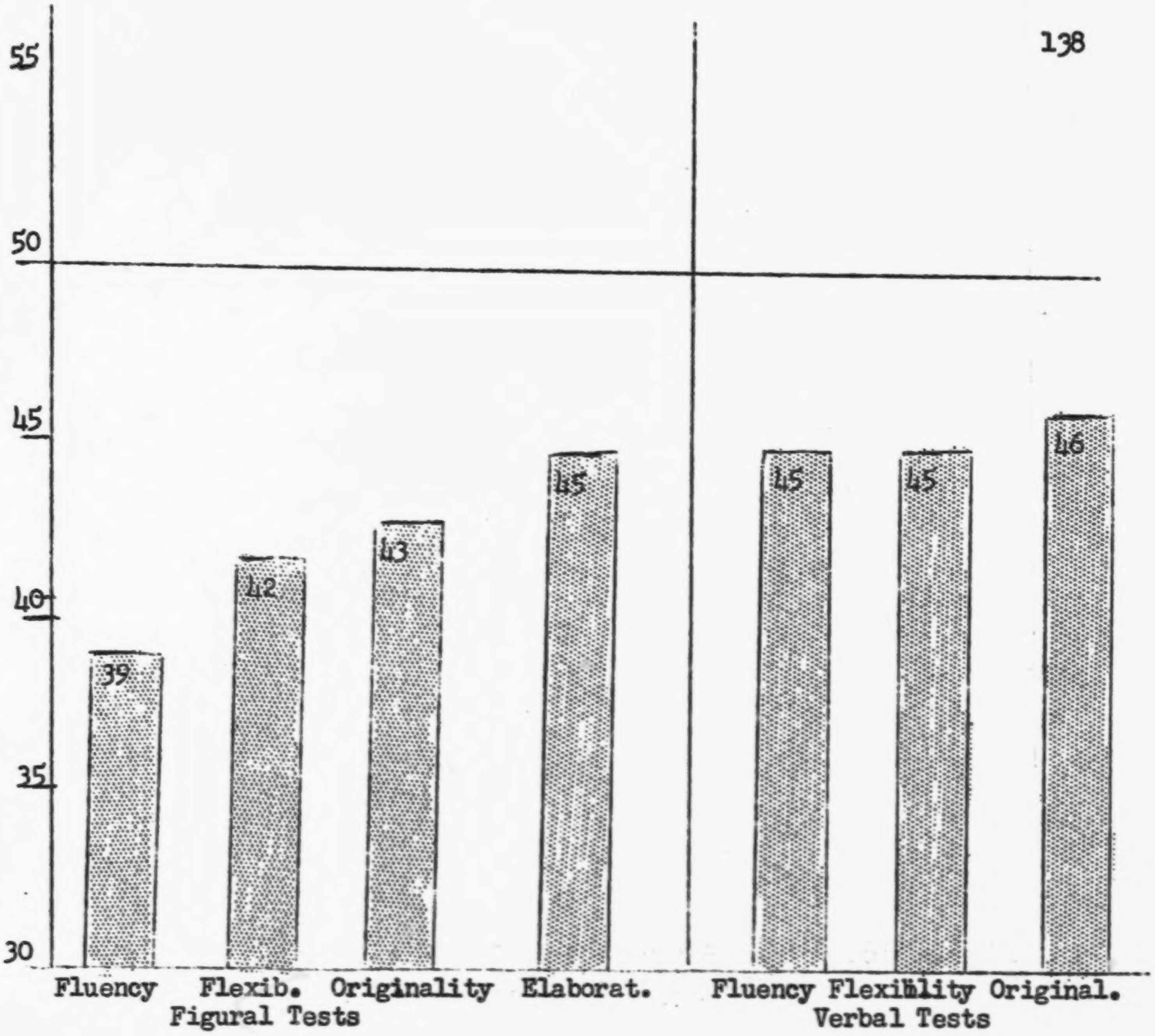

Figure 17. Comparative Level of Functioning on Figural and Verbal Tasks of Fourth Grade Children in Two Australian Schools in Standard Score Units

The really striking thing revealed by Figure 17 is that the Australian children perform comparatively better on the verbal than on the figural measures. This is the reverse of what we found in the U.S.A. Negro profiles and which we shall see in the Western Samoan data in the next chapter.

Chapter 6

CREATIVE DEVELOPMENT IN WESTERN SAMOA[1]

The Culture of Western Samoa

The Western Samoan culture was selected for study because it was known to provide extremely strong pressures for conformity and against divergency. Pressures of the magnitude found in the Samoan culture could not have been brought to bear on elementary school pupils in the United States without the danger of doing irreparable harm to the subjects involved. The primitiveness of the people of Western Samoa and the fairly visible demarcation of those exposed to Western civilization made it possible to assign levels of acculturation to the subjects in the sample obtained. The three mission schools in the more urbanized areas scattered along one coast represented fairly high exposure to Western civilization, while the three government schools scattered along the opposite coast have had very little contact with Western civilization and it is rare that a white man enters this area. The map of Western Samoa in Figure 18 shows how the six schools are distributed geographically.

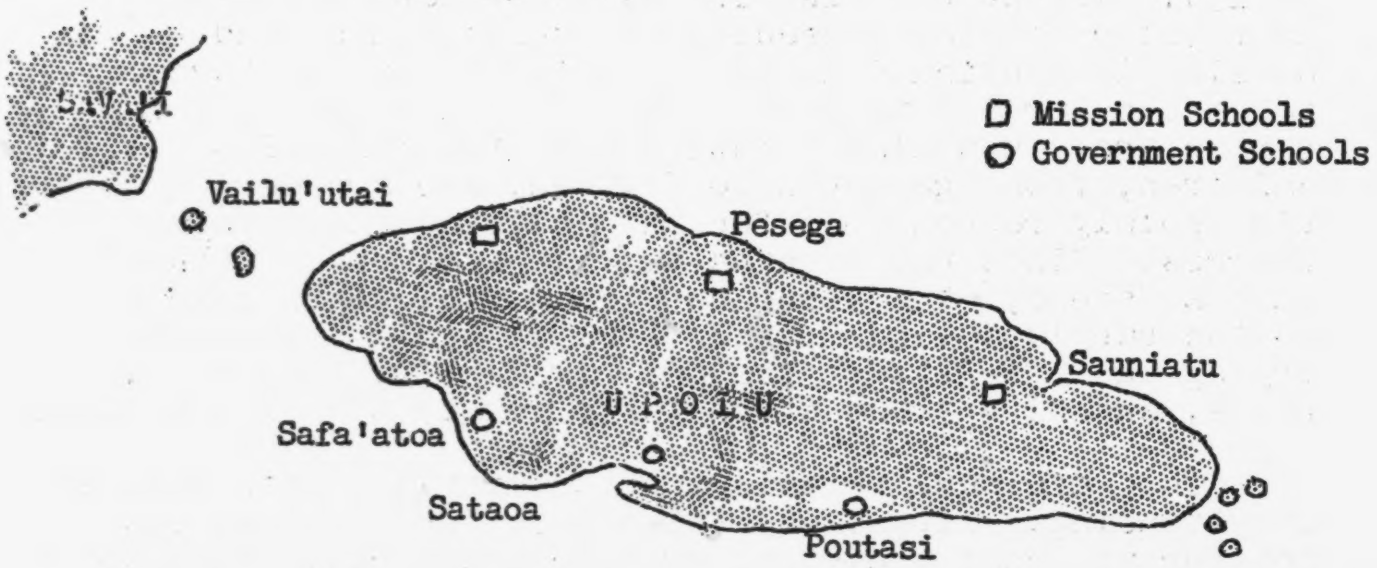

Figure 18. Map of Western Samoa Showing Locations Where Testing Was Conducted

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[1] In the preparation of this chapter, I am especially indebted to Dr. Richard T. Johnson who arranged for the collection of these data and supervised their collection. He and Dr. Noel Iverson prepared most of the background material on the Western Samoan culture.

Western Samoa has a land area of approximately 1,130 square miles and is comprised of two islands: Upolu, an island of 430 square miles on which is located the capital city, Apia; and Sava'i, an island of 700 square miles, more isolated from contacts with other cultures and hence more primitive. The two islands had about one million inhabitants in 1960, when the data for this study were obtained. Most of these inhabitants lived in the coastal villages. Before gaining complete independence in 1962, Western Samoa was a United Nations protectorate under the jurisdiction of New England.

Margaret Mead (1939), perhaps the first anthropologist to study the Samoan culture, characterized it as rigid, demanding of conformity, primitive, and resistant to change. With this type of character, it is not surprising that the culture of Western Samoa in 1960 resembled quite closely the culture found there by Mead. Thus, it might be helpful to review the analysis of education and upbringing in Samoa prepared by Mead (1949).

According to Mead, the education of the Samoan child is an informal affair that is suffused with the considered importance of relative age, in which "the elder may always command the younger" (Mead, 1949, p. 23). Infant care is permissive -- babies experience no regular feeding schedule, are nursed on demand -- and nursing is continued until the child is two or three years old largely to pacify him. Small children and babies are given almost entirely to the care of older children, from age seven to fifteen, who are during this time solely responsible for disciplining their young charges. Since the Samoans dislike emotional outbursts, shun a "scene," the young nursemaid will often give in to the baby's demands rather than risk his unpleasant crying and his fits of temper. Typically, they coax, bribe, and divert the attention of badly behaving babies.

The main task thrust upon the little Samoan girl is baby-tending. Little boys also must tend babies, but not for as long; they, sooner than the girls, learn to cooperate in performing useful, more difficult village tasks (fishing, canoe building, and the like), while the girls must wait years longer for a chance to try themselves at tasks other than the care of babies. When they approach puberty (an indefinite time, depending mostly upon the physical development of the girl) they begin to hand their baby-tending chores to younger siblings.

While the interest of the post-pubescent girl "is expended on clandestine sex adventures," the seventeen-year-old boy enters the society of young men and there learns to be enterprising but not unduly so, to be vigorous but not unseemly. The Samoans frown upon undue precocity and undue laziness: they emphasize group activity and graceful ambition. And, all the while, "the youth is given much more stimulus to learn [than the girl] and also a greater variety of occupations are open to him" (p. 31).

The Samoans continually require, in subtle ways, that the young man "not be too efficient, too outstanding, too precocious. He must never excel his fellows by more than a little. He must neither arouse their hatred nor the disapproval of his elders, who are far readier to encourage and excuse the laggard than to condone precocity" (p. 32). In keeping with their system of cultural expectancies, the young Samoan man "dislikes responsibility, but he wishes to excel in his group"; and the seventeen-year-old girl does not wish to marry, for "marriage is the inevitable to be deferred as long as possible" (p. 33). They feel no great urge to prove themselves, to acquire status at an early age, to enter the world of adults--and the community does not push them prematurely along the path to adulthood.

Age groups, voluntary associations of peers, are a vital part of the life of the Samoan child. The children are left alone much of the time, ignored by the community until they are fifteen or sixteen years of age; and it is only at the age of six or seven that a child begins to associate with her contemporaries. Thus, for about ten years of their lives, Samoan children enter into age-groups, which are formed on the basis of sex. They are not the same, however, for both sexes: "Association based upon age as a principle may be said to have ceased for the girls before puberty. . . . In the case of the boys, greater freedom, a more compelling social structure, and continuous participation in co-operative tasks, brings about an age-group association which lasts through life" (p. 54). However, friendships--even among Samoan males--are neither intense nor long-lasting.

As they have institutionalized the early expression of sexual hostility, so have the Samoans developed formal patterns for the expression of aggression and individual precocity. It is in the dance: A "genuine orgy of aggressive individualistic exhibitionism," and on the dance floor that "the precocious child is applauded, made much of, given more and more opportunities to show its proficiency while the stupid child is rebuked, neglected and pushed to the wall" (p. 83). The dance serves the Samoan in the development of individuality and it compensates him for the repression of personality he suffers in other spheres of his life. We might consider here the significance of the fact that for the Samoan there are only two primary sources for feelings of inferiority: clumsiness in sex affairs and clumsiness on the dance floor. The reason for the latter is clear; we shall discuss the former, in an indirect fashion, below.

The Samoans' attitude towards personality says much about both the effect of their child-training practices and about the tone of their interpersonal relations. To begin with, we can make the general statement that "Their evaluations of personality are a curious mixture of caution and fatalism." They live with an almost complete lack of personal privacy, and it seems that they compensate for this public state of affairs by practicing "a violent gloomy secretiveness" (pp. 86, 88). Yet they lack curiosity about individual motivation, giving a typically ambiguous answer to any personal question. And their almost total lack of private possessions--all of an individual's acts being "public property"--fits the pattern. Further, they do not have a way of comparing the relative merit or worth of a thing, a person, an act. Their language "has no regular comparative" (pp. 87, 88). There are four native terms for classifying attitudes: translated, they are, "easy" or "with difficulty" (judgements of character), and "good" or "bad" (judgements of behavior). Thus, "good or bad behavior have become, explained in terms of ease or difficulty, to be regarded as an inherent capability" (p. 89).

Outside of its formalized expression in the dance, the Samoans are strikingly reluctant (if I may phrase it this way) to show intensely how they feel. "And always excessive emotion, violent preferences, strong allegiances are disallowed. The Samoan preference is for a middle course, a moderate amount of feeling, a discreet expression of a reasonable and balanced attitude. Those who care greatly are always said to care without cause" (p. 89). Incidentally, they display a strange attitude towards the expression of emotion, classifying it as "caused" and "uncaused." Discreet and moderate is the word: friendships are casual, quiet, and seemingly (to a Westerner) superficial. With regard to the relations between the sexes, boy-girl attachments are easily made, easily dissolved. There is no poignancy in broken friendships, in terminated love affairs. And "Preference between the sexes is given not to the arrogant, the flippant, the courageous, but to the quiet, the demure boy or girl who 'speaks softly and treads lightly'" (p. 91). Not surprisingly, then, the Samoans dislike most those who desire to be highest, those who flaunt the socially approved pattern of a modest demeanor and seek to impress others with their (real or imagined) superior qualities. The big man in Samoa is not the same as the big man in America, for there he would be most unpopular.

It is particularly the case with beliefs about religion and morality that the Samoan is left with little choice: he either accepts (in varying degree) the beliefs and practices of his fellows or he rejects them (totally) for no alternatives--he has none to which to turn. But the occasion for such rejection is virtually absent, it being true that the Samoan child is "never called upon to make choices involving an actual rejection of the standards of her social group"; adults retain this temperamental lack of any rebellious impulses (p. 135).

All this indicates that the range of individual variation, in temperament and character, is small. Theirs is a relatively homogeneous and unneurotic society. Strong feelings are, if not abhorred, customarily discounted: the individual's strong feelings are regarded as unfortunately caused by something quite beyond him or his situation--and it is expected that he will get over it, that the cause will leave him. What does this mean in terms of the mood, the psychology of the individual? He appears stable, satisfied, conflict-free--in a word, he has adjusted himself nicely to Samoan life. The Samoan's "lack of difficult situations, of conflicting choice, of situations in which fear or pain or anxiety are sharpened to a knife edge will probably account for a large part of the absence of psychological maladjustment" in his life (p. 137).

A number of early experiences in Samoan life favor their nervous stability: At an early age they grow accustomed to the phenomena of birth, sex, and death. Since "None of the facts of sex or birth are regarded as unfit for children," they easily learn to approach these potentially upsetting phenomena with a matter-of-fact and nonchalant acceptance. This is not so much because they are exposed to these phenomena as because their elders believe it is natural that children be present while someone is dying--or during birth or miscarriage--and that they commonly observe and experiment with sex (p. 142).

Seldom is there an only child in the Samoan family. All siblings receive essentially the same parental treatment, which means that children do not tend to dominate their younger siblings and that few are heavy-laden with the adult responsibility of caring for a younger sibling and that few are spoiled or pampered. In addition to this, the lack of a close relationship between child and parent avoids or minimizes the element of parental authority and dominance. If a child's father is too harsh, the child leaves to live with his uncle. The child does not feel awe for his parents, does not feel it necessary to defy his parents, or any authority; the whole idea of adolescent rebellion or defiance of adult authority is strikingly absent from Samoan life. Rather, "the Samoan baby learns that its world is composed of a hierarchy of male and female adults, all of whom can be depended upon and must be deferred to" (pp. 138-139).

Pre-adolescent children of opposite sexes in Samoa practice an "institutionalized hostility." This means that, since young boys and girls are segregated, a child sees all children of the opposite sex as either taboo relatives or if nonrelatives as present enemies or future lovers--and all this regardless of individuality. He sees the opposite sex as a class, not as individuals (p. 139). At an early age, personal relationships with the opposite sex are slight, remote, formalized, and lack the sort of emotional involvement that can give rise to conflict and poignancy. Since the Samoans place individuals into categories and respond not to the individual but to the category of individuals, they lack a keen specialization of feeling. In view of this it is understandable that "the Samoans have a low level of appreciation of personality differences, and a poverty of conception of personal relations" (p. 146).

Peer pressures, the drive to excel and prove oneself by competing with the others, is absent in Samoan society. The dance is a formal outlet for any such expression of individuality. Since the Samoans disapprove of precocity, wait for the intellectual laggard, coddle the inept, individual differences are blurred and jealousy, rivalry, emulation is limited.

The education of the Samoan child is rather more directly related to adult activities than is the case in America. The usefulness of his education is readily apparent, for he does not while away his childhood days at play tasks but is instead expected to do useful (productive) work. And for the Samoan work is a continuous but not irksome fact of life; he does not share our (American) play-work distinction, in which play is seen as being basically pleasurable, a childish preoccupation, while work is seen as being basically irksome, an adult business. The Samoan does not regard work as a way of acquiring leisure, of deferring enjoyments while one saves and invests for retirement. Neither does he place a high value on work per se; the sluggard is not chastised in Samoan society. He sees play as activity that fills in the time between work--not as a reward for work.

Samoan life has a casual quality. It shows no pronounced conflict of interests; conflict is avoided by the simple and effective removal of oneself from the conflict situation. Disinclined to appear unseemingly passionate or ambitious, no Samoan "plays for very high stakes" (p. 132). They are not threatened by poverty, disasters, vengeful gods, war, or cannibalism. Their personal relations (as we have noted) are characterized by "brief and shallow emotional involvements," and they avoid poignant situations. It is a general fact in Samoan society that "the gifted, the precocious, are held back, until the slowest among them have caught the pace" (p. 132). And their lack of deep feeling is conventionalized, becoming in a real sense "the very framework of all their attitudes toward life" (p. 133).

The Samoan child experiences no profound crises of choice. He is not compelled or strongly urged to arrive at a decision. There is little pressure on him to make important choices; no definite time is proscribed for when he must make up his mind about, say, marrying.

Two major factors contribute to the mental stability of the Samoan: First, the organization of the family, it being extended and casual and relatively free of authoritative parental influence; and secondly, their attitude towards sex, it being also casual as well as frank and relatively free of guilt and anxiety.

The foregoing analysis based largely on the early work of Mead can now be checked against the Ideal Pupil data and the interview data collected from the teachers of the six subject schools.

What Is an Ideal Pupil in Western Samoa?

Responses to the Ideal Pupil Checklist were obtained from a sample of sixty teachers in Western Samoa. In addition to the teachers of the six subject schools, teachers in nearby schools were interviewed. The results are shown in Table 54.

Table 54

Comparative Rankings on Ideal Pupils Characteristics of Samoan Teachers, Expert Panel, and United States Teachers

Characteristics	Expert Panel (N=10)	United States (N=1512)	Western Samoa (N=60)
Adventurous	11.5	19	30
Affectionate, loving	41	32	18.5
Altruistic, good of others	48	36	57
Always asking questions	13	38	3
Attempting difficult jobs	18	20	18
A self-starter	11.5	12	27
A good guesser	16	53	7
Bashful	60	56	61
Becomes preoccupied	8	41	44
Considerate of others	45	1	43
Critical of others	39	46	46
Courageous in convictions	1	22	11.5
Courteous	56	8	14.5
Curious	2.5	4	20.5
Competitive	44	34	10
Desires to excel	37	21	11.5
Determined	16	6	27
Domineering	51	61	50.5
Disturbs class organization and procedures	36	60	52.5
Does work on time	56	13	6
Emotional	34	50	35
Emotionally sensitive	14	43	39
Energetic	20.5	14.5	30
Fault-finding	43	58	62
Haughty, self-satisfied	61	62	45
Healthy	46.5	7	2
Independent in judgment	4.5	16	32
Independent in thinking	2.5	2	4
Intuitive	6	30	22
Industrious	31	9	24.5
Likes to work alone	28	44	14.5
Never bored	25	40	42
Nonconforming	26	51	40
Negativistic	53	59	62
Obedient	58.5	25	9
Popular, well-liked by peers	49.5	28	5
Persistent	8	23	20.5
Prefers complex tasks	22.5	39	36.5
Physically strong	52.5	37	8

Table 54 (Continued)

Characteristics	Expert Panel	United States	Western Samoa
Quiet	52.5	48	16.5
Receptive to ideas of others	34	11	47.5
Regresses occasionally	28	49	58.5
Reserved	49.5	47	36.5
Remembers well	31	24	1
Self-confident	19	10	23
Self-assertive	28	42	38
Self-sufficient	20.5	31	49
Sense of humor	22.5	3	16.5
Sense of beauty	31	17	13
Sincere	25	5	19
Spirited in disagreement	34	45	41
Strives for distant goals	16	26	27
Stubborn	39	57	58.5
Sophisticated	42	54	56
Timid	58.5	55	52.5
Thorough	24	18	32.5
Talkative	46.5	52	54.5
Unwilling to accept say so	8	35	54.5
Visionary	10	27	30
Versatile, well-rounded	39	14.5	34
Willing to take risks	4.5	29	50.5
Willing to accept judgment of authorities	62	33	47.5

When the rankings derived from the data supplied by the Samoan teachers are correlated with those of the U.S.A. teachers, a coefficient of .56 was obtained. When these rankings are correlated with those of the panel of experts on the "ideal creative personality," a coefficient of .17 is obtained. These findings tell us that there is considerable discrepancy between what characteristics U.S.A. and Samoan teachers encourage and discourage and that there is an even greater discrepancy between what Samoan teachers believe should be encouraged and what experts believe should be encouraged and discouraged in order to develop productive, creative persons.

In attempting to analyze the findings reflected in the preceding table, Johnson explained that there are roughly three sets of influences that must be taken into account. Each of these had a profound effect upon the culture and the scale of values attached to behavior in the school situation.

The first and probably the main influence was the accumulated events of more than a thousand years of history. Through this time Samoa has been plagued by internal dissension. In the early 900's (AD) the ruler Pili divided the islands into four areas, with each of his four sons to rule one of them. Bickering and unrest weakened the nation so much that Tonga was able to conquer it, and hold it for a period of 300 years. Both early and subsequent attempts to unite and strengthen the people probably had an effect on the type of internal government and the makeup of the culture. A strong patriarchal family system evolved with emphasis on a chain of command; the highest decisions were made in the village "fono" of chiefs and passed down to the submissive subjects. Acceptance of the authority relationship was probably rewarded, and looked on as an ideal characteristic. The present family life reflects this, in that each child is expected to kow-tow to his older siblings and his elders, but can strike and harass his younger peers and siblings.

The second influence is a function of the influx of missionaries and German traders since the early 1830's. Here also the emphasis was on submission, either to God and his "special representatives," or to the traders who needed submissive workers to take care of the plantations.

The third influence began with the New Zealander's entrance into the government of Samoa in 1914. With them came the idea of an extensive educational system, school uniforms, leaving examinations, and uniformity of learning. The authoritative governing system was continued, both in government and in the hierarchy of the school system.

The school, as a result of New Zealand influences, does not always reflect the culture of the people attending it. This is possibly more evident in the remote areas of the island where the government educators inspect the schools regularly but this is the only contact the people have with the "palagis" (whites). The school is modified somewhat but the culture of the village hardly changes.

The authority characteristics of the culture, with the emphasis on submission to the "matai" or family chief, is probably reflected in the following ideal characteristics: (1) "accepts judgement of authorities," (2) "obedient," (3) "timid," and (4) "quiet." Similarly, the characteristics not considered as ideal include "independent in judgement," "industrious," "self-starter," and "willing to take risks." Individuals manifesting these characteristics would disrupt the matai system of government, and the teachers could be expected to condemn such behavior.

Some of the other characteristics not checked seem to be based on a combination of the social and educational values: "desires to excel," "intuitive," "strives for distant goals," and "thorough." Those students exhibiting such traits would be hard to handle, would threaten traditional authority relationships, and would possibly upset the teachers whose education often includes only one year more than the students.

An example of how thoroughly imbued the students are with the attitude of doing nothing until told is the case of Faleolo. She was the housegirl of one of the teachers, and did quite well with the tasks assigned her. When the teacher returned from a two-day trip, he found the girl had not eaten the entire time. When he asked her why she hadn't, she replied, "You didn't tell me to eat."

In the Samoan homes, the children are told each thing they are to do. Commands rarely encompass detail, although what they are to do may be identical to what they did every day for the past ten years.

Certain other ideal characteristics seem to group together: "remembers well," with a positive evaluation; "prefers complex tasks," and "versatile" with a negative evaluation. Memory seems to be a highly prized characteristic, especially so with those students studying for the detail of the leaving examination. (One question from the 1960 examination was "How many eggs does an earthworm lay in a season?" Yet there are no earthworms in Samoa.)

Memory apparently was not always prized among the "peons" (according to Mead), but the rulers have always had to learn a long genealogy. The written language is a recent innovation in Samoa; previously the matai had to remember tapa designs, history, legends, songs, and rituals. The educational system now seems to reward a good memory in all those attending school, but preference is still for simple tasks which obviate the need for a good memory. Whether this is due to the simplicity of their life, simple work tasks, or tropical environment is difficult to ascertain.

Along with greater significance attached to remembering, teachers consider a "good guesser" as ideal. Samoans have traditionally been observant, good mimics, and watchful for small cues. Johnson reported (1963) that he would print a mathematical formula on the blackboard, have the students work out a proof, ask a question about that formula which would necessitate an obvious "no" answer, give deliberate yet subtle "yes" cues with his head, and receive incorrect "yes" answers from almost everyone in the class.

The quality of being "affectionate," which the teachers did not check, is hard to evaluate. The students seem to be quite affectionate toward each other within sexes, but not openly affectionate between sexes. They often touch a teacher's hair and remark on its beauty, give gifts and appear sad when a particular teacher leaves, but perhaps this is discouraged in the government schools.

The positive reaction to "curious" is possibly due to the Samoan translation probably being closer to "motivated to learn." This would explain the traits of "always asking questions" and "good guesser" marked as ideal because these show motivation, and these students might also be expected to show greater deference to the teacher.

"Healthy," a positive characteristic, reflects the cultural emphasis on physical prowess (the iron hand of rule), gyrations in dancing, and absence of sickness, which seems to take a heavy toll of life. (Something like 92 percent of the people have intestinal worms.) In addition, the New Zealanders and missionaries have fostered all-school athletic contests, sport-days, and intramurals.

In summary, the culture could be characterized as restrictive, somewhat hierarchical, authoritative, and modified somewhat by the modern emphasis on education. This would all be reflected in the teachers' ratings of the ideal pupil.

Occupational Choices of Western Samoan Children

In preparing the booklets for the testing in Western Samoa, we neglected to add a blank for indicating the sex of the subject. Thus, we were unable to tabulate occupations according to sex. The results, however, are given for the entire sample along with those for the U.S.A. sample in Table 55.

Table 55

Comparison of Most Popular Occupational Choices or Aspirations of Samoan and U.S.A. Samples

Occupation	Percents Samoan (N=724)	 U.S.A. (N=4192)
Actor, actress, entertainer	0.0	1.1
Air hostess, steward	0.0	1.9
Artist, cartoonist	0.0	2.2
Athlete, professional	0.1	5.7
Barber, beautician	0.0	0.9
Construction worker, carpenter, etc.	0.8	1.1
Engineer	4.2	3.4
Farmer, planter, rancher, etc.	1.2	3.7
Housewife	0.2	3.7
Lawyer	0.0	2.1
Mechanic, electrician	1.0	1.5
Medical doctor	12.0	6.1
Military, soldier, sailor	1.1	3.2
Minister, missionary, priest, etc.	5.7	2.2
Musician, singer, etc.	0.2	1.2
Nurse	6.5	13.3
Operator, truck, bus, etc.	4.0	1.5
Pilot, astronaut	0.7	2.7
Police, detective, etc.	5.3	2.1
Scientist, chemist, etc.	0.0	5.4
Secretary, clerk, typist, etc.	1.0	3.5
Teacher	38.1	16.3
Undecided	9.4	8.3
Veterinarian	0.0	2.5
Other occupations	8.0	36.0*

* Some of the U.S.A. subjects expressed more than one choice.

From these data, it will be noted that the range of occupational choices by the Western Samoan children is exceptionally narrow, even narrower than for the U.S.A. Negro group. Thirty-six percent of the U.S.A. sample made choices outside of the twenty-three most popular occupations compared to only eight percent of the Samoan children. This is even more striking when we note that most of these choices for Samoan children were for such things as storekeeper, butcher, and store owner and when we note that the Samoan children made no choices in such popular U.S.A. classifications as acting, air hostess, artist, barber, beautician, lawyer, scientist, and veterinarian. The absence of choices in such areas as art, law, acting, and science are especially striking. Thus, the occupations that we have classified as "creative" and "unconventional" are almost entirely missing among the career aspirations of these children. It is interesting, however, that the proportion of children aspiring to careers in medicine is quite large, about twice the proportion found in the U.S.A. sample.

Since career aspirations undoubtedly influence motivation for learning and the kinds of behavior that are encouraged and discouraged, the preceding findings contribute to a prediction of a low level of creative functioning among Samoan children. In certain areas of Samoan life, however, creative skills are rewarded and school behavior seems to be strongly influenced by this, as will be seen later in the interviews with the teachers. For example, almost all of the teachers say that boys are better in art than girls, that their drawings are more interesting and "nicer." Some of the teachers commented that the boys received more experience in art than the girls. Others indicated that the boys needed art in Samoan life more than the girls and that all the girls needed was the ability to draw designs, stick figures, and the like.

Schools of Western Samoa

The schools on the island are of two major types: government and mission. In the major villages, the government maintains elementary schools which are roughly grouped into 14 districts. The local Commissioner of Education gave permission to test in the three most remote of these. (See map on Figure 18.)

In order to contrast the traditional government schools with the more modern and Americanized mission schools, permission was sought and granted to test within the school system operated by the Church of Jesus Christ of Latter-Day Saints. This is the largest mission system on the island and includes a large elementary school approximately two miles from Apia and two remote ones, one about 15 miles westward along the coast from Apia and a second about six miles inland in the crater of an extinct volcano. The two outlying schools were taught by native teachers but both of them had principals from the United States. The mission school at Pesega, near Apia, consisted of two classes at each grade level, to one of which pupils were assigned randomly. One was taught by a native and the other by an American teacher.

The Mission Schools

Teaching aids such as maps, models, bulletin boards, films, records, tapes, and the like were common in the school at Pesega. Both English and Samoan textbooks were used, especially in the lower grades. The language of instruction was supposed to have been English, but the native Samoan teachers usually spoke Samoan except when they had to explain a particularly difficult concept. They switched to English then because the Samoan language does not include terms for a number of English words.

In the other two mission schools, Samoan was spoken almost entirely. In one of them, however, some of the instruction was in English and English language, spelling, reading, etc. were major parts of the curriculum. One of these schools boasted a "European-style" building with walls, blackboards, and teaching aids. The other school was held in typical wall-less and door-less buildings. Blackboards were used as room partitions. There was no electricity and very few teaching aids, but the teachers had access to an adequate supply of paper, textbooks, and the like.

Johnson (1963) explained that the mere accessibility of teaching aids did not insure their use. In-service sessions had to be held to teach the native teachers how, for example, to teach when all their pupils had textbooks, an experience which most of these teachers had never had before.

Interview data were available from ten of the teachers in the two remote mission schools. Their average enrollment was 16.3 pupils per teacher. The range within a grade was considerable and in general the average age of the boys was about two years greater than that of the girls in any particular class. The school year lasts for ten months (five days per week and 6-1/2 hours per day).

All of these teachers reported that they placed on the front rows the "poorest," "weakest," "most ignorant," "slowest," or "smallest" pupils and assigned the "brighter," "wiser," "better" students to the back of the room. One teacher indicated that he placed the most troublesome and restless children on the front row. Only three of these teachers reported any marked tendency for age groupings to develop within a class and only two reported groupings along sex lines.

Nine of these ten teachers indicated that the boys preferred to work alone while only five of them indicated a strong tendency among the girls to prefer working alone. Most of the teachers reported that their pupils preferred to work alone on such subjects as arithmetic, spelling, and English but that they preferred to work together in doing such things as weaving mats and baskets, making candles, reading Samoan stories, practicing songs, and playing games.

The teachers were rather apologetic for the children concerning the way that their environment was likely to affect their test performance. One teacher commented as follows concerning the limitations inherent in their geographical situation:

> "The Samoan child lives in a small country so he sees trees, stones, rivers, but an American child lives in a big wide country."

Some teachers thought that their performance might be influenced by their dietary deficiencies, as illustrated by the following comment:

> "Samoan children are also very weak because of the food they eat (poor vitamins). The children need much help for their lessons."

Others were concerned about the effects of poor attendance at school, as illustrated in the following comment:

> "Samoan children go to school some days and go on work for many days on their plantation but white children go to school every day of their school life."

Other teachers were concerned about other disadvantages such as the lack of electricity, poor mineral resources, and the like.

All of these teachers indicated that their pupils had not had any experiences with individual or group intelligence tests, standardized reading tests, standardized achievement tests, or aptitude tests of any type. All of them indicated, however, that their pupils had had experiences with multiple-choice, true-false, completion, essay, and problem-solving tests. The children in these schools appear also to have had considerable experience with timed tests, averaging about 16 per class.

It was the consensus of these teachers that boys draw better than girls, draw more interesting things, have more ideas about things to draw, and are more interested in drawings than the girls are. Seven of them gave "memory drawing" as the major type of drawing done. Two mentioned "object drawing" and two indicated that pupils choose what they will draw. One teacher said that she drew pictures on the board for them and that this was what the children drew.

According to the teachers, the response of the children was apparently quite favorable to the tests of creative thinking. Seven of them said that their pupils approved of the tests and enjoyed them; the other three said that their pupils enjoyed taking the tests very much.

In these mission schools, religion had an important place in the curriculum. English and arithmetic seemed to occupy important roles also, with social studies coming next. Most of the teachers also reported that the curriculum for their classes included health, science, spelling, and reading. A few included music and nature study.

All of these teachers reported that their pupils were extremely concerned and anxious about grades and promotion. As a result of failure in school, children were described as "miserable," "sorry," "uncomfortable," and "willing to try again with all their hearts."

Preparation for citizenship in a country soon to receive its autonomy loomed important in statements by the teachers of their philosophy of education. As might be expected, religious goals also figured importantly. The following are illustrations of some of the more elaborate statements of philosophy:

> "So that they may be useful to their own homes, church, and country. So that they may grow up and help their own people. To learn and then go forth and serve. Good character."

> "So that Samoa would be one of the most wonderful countries in the world to live in--his own free agent."

All of these teachers were of Polynesian origin. Five of them were men and five were women. Their average age was 32.7 years. Six of them had completed four years of college training and only one, a fifty-year-old woman, had not gone beyond the eighth grade.

Memorization, problem-solving, and class discussion seem to have been the favorite methods of instruction.

Teacher demonstration, lecture, recitation, and experimentation were listed by some of them. All of them regarded themselves as informal rather than formal in their teaching approaches.

All of the mission teachers reported that they gave opportunities for independent study but that they made uniform assignments to which there were no exceptions. There were no clues in the interview data concerning how they reconciled this rigid approach to uniform assignments with individualization of instruction.

The following quotations summarize attitudes concerning discipline:

> "Teacher must show the students how much discipline he has, so that the students will feel respect for the teacher."
>
> "Teacher much show good discipline first and the students will do the same."

Praise, letters to parents, and gifts seem to be the major elements in the reward system of the mission teachers. Some of them appeared to be rather indiscriminate in their use of praise, as indicated by the following comment:

> "Praise the child no matter how poor or stupid they are. Send a note to the parents telling them how bright their children are."

Still another asserted:

> "I praise them no matter how disobedient or what else they have done but I still praise."

Some of the teachers indicated that they used gifts such as candy or books at the end of the year, stars by the names of the children throughout the year, and the like.

Eight of the ten mission teachers believed that the boys in their classes worked more willingly and learned more rapidly than did the girls. Only one of them believed that the girls worked more willingly and learned more rapidly than the boys. In general, however, they indicated that it was about as easy to work with one sex as the other.

All of the mission teachers reported that they kept their pupils informed of their progress. In answering questions concerning standards, the teachers indicated a kind of preoccupation with standards of "showing respect." They indicated, nevertheless, that their pupils accepted the authority of the teacher and were easy to work with. They perceived their pupils as competitive with one another for honors, especially in various kinds of contests that appear to have been rather common. Nine of them mentioned spelling contests; three mentioned singing contests; three mentioned talent contests; and one or two each mentioned contests in dancing, speaking, arithmetic, reading, science, and English.

The Government Schools

The three schools of the government system were rather similar to one another. All of them were on the opposite side of the island from the population concentration and had little contact with other cultures. These schools had few textbooks and the teaching was almost completely recitative. Paper was so scarce that old tests were reused until no blank space was left on them. There was no electricity and few blackboards. Samoan was the only language spoken in these schools, although there was instruction in English reading, writing, and speaking in some classes. Much of this instruction, however, consisted of listening once a day to an English lesson broadcast by a government radio station over a battery-operated radio.

Interview or questionnaire data were obtained from 25 of the teachers in the three government schools. In contrast to the small enrollments in the mission school classes, the average enrollment in the 25 classes taught by these teachers was 37.5. Within a given class the age range was usually three or four years and sometimes greater. In many classes, the average age of the boys was two or three years older than for girls.

Twelve of the 25 teachers indicated that there were age groupings within their classes and thirteen indicated that they grouped their pupils so that the weakest or slowest learning pupils were near the front and the more able ones were in the back of the room. Even the youngest class seemed to have been arranged in rows or lines. Only one teacher said that she placed "the smartest pupils near myself." A few of the teachers divided their classes into groups heterogeneous in ability and the brighter ones were given the responsibility of leading and teaching the slower learning ones.

There was a fairly general tendency for the teachers to perceive the boys as having a stronger preference than the girls for working alone. There were some indications that the preference of both sexes was for working alone in subjects such as arithmetic, science, spelling, and the like and for working together in arts and crafts, social studies, and health. Some teachers indicated, however, that the boys preferred to work alone even in their crafts and handwork. One teacher commented, "The girls need talking and work together."

The government teachers were even more apologetic than the mission teachers concerning the limitations imposed by geography, as well they might have been. The following are some illustrative comments:

> "Samoan pupils live in narrow places, and others live in wide world for many new things."
>
> "Samoan pupils are not like those who are in America for the Samoans know only where they are living and what has been taught in school but the Americans know more for they are in a wide world."
>
> "Samoan children can't think about many things, because Samoa is just a small country and they can't see many different things such as in USA. Their environment is very small."
>
> "European children think about the biggest world that they live in, but the Samoan children will just see some things around them such as coconut tree, banana tree, taro, hibiscus, etc."
>
> "The pupils of Samoa are different from those in other countries. They think just the things they see with their eyes. All things are surrounding them but other countries are in the big open world."

The idea of other children being in a big world, an open world, a wide world, etc. appeared in almost all of the comments.

None of the children in the three government schools had been given either individual or group intelligence tests. Neither had they had any standardized reading or achievement tests. All of them, however, had had experience with timed tests and with multiple-choice, true-false, completion, and other types of "objective" tests. They had not had nearly as much experience with timed tests as the children in the mission schools had

had. The teachers estimated on the average that their pupils had had 3.3 timed tests during the past year compared to 16 such tests in the mission schools.

In all classes, the regular teacher did the art instruction. Eighty percent of the teachers believed that the boys drew better than the girls. They thought that the boys were more interested in drawing, drew more nicely, had had more experience in drawing, and thought more deeply than did the girls. They reported that their pupils liked to draw the things that are done in their homes and usually chose their own subject matter. A few indicated that "girls need much help and have to be shown examples of drawings or designs."

Twenty-four of the 25 teachers in the government schools indicated that their pupils "enjoyed" or "enjoyed very much" taking the tests of creative thinking.

In terms of number of hours per month devoted to different activities, greatest curricular emphasis was placed on arithmetic, English, arts and crafts, Samoan language, social studies, nature study, health, handwork, writing, and spelling in that order. Games, singing, and speech also received some emphasis in a few of the classes.

The school year is ten months, beginning in February and continuing until November, five days per week and five hours per day.

As reported by the teachers, Samoan was the sole language of instruction used by ten of them; both English and Samoan was used by twelve of them; and three used English only.

As in the mission schools, the teachers thought that their pupils were extremely concerned and anxious concerning failure in examinations and non-promotion. Ninety percent reported "extreme concern and anxiety" and the remaining ten percent reported "strong concern and anxiety." Shame was mentioned most frequently as the reaction to failure. As a result of this feeling of shame, some pupils wanted to give up, stay at home, or otherwise drop out of school. The teachers, in turn, perceived themselves as having the responsibility for making them "want to try again," "trying to make them happy," and the like. Some teachers described such pupils as being at "the end of their wills." The following comment by one teacher is illustrative:

> "He thinks he is a useless person in the world but the teacher can help him as well as he can."

Promotion in some classes seems to have been based almost entirely on performance on final examinations prepared by the government school system. Some of the teachers gave the impression that a second failure at a given grade level is tantamount to expulsion from school.

Perhaps to an even greater extent than in the missionary schools, there was almost a preoccupation with preparing children to participate in the independent Samoan government that was to come into being in 1962. The following are illustrative of these statements:

> "Samoan children are sent to school to gain more knowledge so that they can work and help their own people instead of Europeans' leading us. This is because Samoans are going to have their own government in two years."
>
> "Children will work for the freedom of Samoa. Do some useful things in the world where they live, to their parents, their villages, and to themselves."
>
> "To teach all students to become useful for the future of their own country; they must know how to live safely and freely in their own lives."

Thirteen of the teachers who supplied information were women, eleven were males, and the sex of the other one was not ascertained. Their average age was 26.2 years and ranged from 17 to 46 years. Eleven of them reported that they had completed four or more years of post high school education; six reported no post high school education; and four did not respond to the query concerning the amount of their education.

Class discussion and memorization were the most popular methods of teaching, according to the teachers' reports; lecture, problem-solving, and experimentation were also fairly popular. Twenty of the 25 government school teachers regarded their teaching approach as informal; only one described his approach as formal; four made no comment concerning their approach. All of them said that they made provisions for individual differences but all of them except two said that they made uniform assignments to all pupils, fourteen saying that they permitted no exceptions to these uniform assignments.

These teachers were not especially communicative in regard to the questions on the freedom of pupils to ask questions and to express their ideas. In general, these teachers seemed to think that they allowed their pupils such freedoms. Some indicated, however, that there were such limitations as holding up hands to obtain permission to express an idea or permitting children to ask questions only when something was not clearly explained.

The theme of these teachers' comments regarding discipline was about the same as that of the mission school teachers: i.e., "the teacher must show his discipline to the class first and then the pupils will follow him." Others added such comments as: "teachers must use polite words always," "teachers must explain the way to act," and "teachers must show good manners." A few of them indicated that the discipline of girls is better than that of boys; others felt that there were no differences.

In describing their reward systems, 18 of these 25 teachers mentioned "praising the pupil in front of the class"; eleven mentioned "writing a letter to the parents or talking with the parents"; five mentioned "giving presents or prizes." One teacher, quite interestingly, indicated that "teaching them honestly" was the best reward he could give.

Twelve of these teachers thought that girls worked more willingly than boys and six thought that boys worked more willingly than girls. In general, however, they felt that it was just as easy to work with boys as with girls and they reported no special difficulties.

All of them said that they kept their pupils informed about their progress. Twenty-two of them said that they gave their pupils their grades and the results of their examinations. All of them expressed concern about maintaining satisfactory standards.

Thinking about student-teacher relationships seemed to be focused almost entirely on considerations of respectfulness to the teacher. Most of them seemed to indicate, however, that their pupils were "keen on doing every command given by the teacher."

Twenty-one of the government school teachers expressed an awareness of competitiveness among their pupils for honors. As in the mission schools, there seemed to be a variety of contests with reading and spelling contests being mentioned most frequently. Singing, talent, English, science, numbers, and activities were other types of competition mentioned.

The picture given by the interview data furnished by the government teachers would lead to a prediction of a generally low level of creative functioning, especially in verbal areas and especially for girls.

Performance on the Tests of Creative Thinking

A total of 526 children in the mission schools and 541 in the government schools or a total of 1,067 were tested with the tests of creative thinking described in Chapter 2.

Since anthropologists have stressed the importance of collecting data in the native language of the culture under study, the entire battery of creative thinking tasks, including the instructions, was translated into Samoan. A native Samoan, who possessed the added merit of being a graduate of an American university, made one translation. Another translation was made by an American missionary who spoke Samoan fluently, and the two translations were compared. Since a number of the English words could not be translated directly into Samoan (e.g., imagination, originality, idea, etc.), the two translations were slightly different and so the most accurate phraseology of each was selected. The Samoan translations and examples of responses are shown in Appendixes A and B of this report.

It was necessary to change somewhat the examples used in the standard directions. For instance, a house (fale) was substituted for a street in the incomplete figures and a kava bowl replaced a table in the circles test. Both street intersections and tables are rare in Samoa.

The final translation and new examples seemed as complete and as accurate as one could make them. However, the lack of equivalent words in the Samoan language made it necessary to use a longer set of directions; they had to be much more elaborate. It is believed, however, that this had a negligible effect on the performance of Samoan children.

The tests were administered by Richard T. Johnson, a graduate student then on a mission assignment in Western Samoa, with the help of Tavita Fitisimanu, a graduate in sociology from an American university. Mr. Fitisimanu held a number of matai (chief) titles and was one of the leading figures in Samoan political life. In fact, his political stature sometimes delayed the testing since Samoan protocol demanded a few days' feasting whenever he entered a village. The delay was partially offset by substituting his brother at the feasts. So while Johnson and Tavita Fitisimanu administered the tests, his brother made many speeches and ate huge quantities of roast pork demanded by the culture.

The relative inaccessibility of four of the six schools necessitated the use of a motor scooter, a jeep, and a horse for negotiation of the narrow jungle trails. Because of their remoteness, many of the Samoans in these villages had rarely, if ever, seen palagi or white men.

The orally administered tests were handled entirely by Fitisimanu who translated the responses directly to the test booklets. The teachers of the first two grades aided the two examiners in recording the labels in the figural booklets. On the group-administered tests pupils were asked to respond in their preferred language as long as it was either Samoan or English. Upon completion of the testing, the responses were translated into English by two Samoan teachers who had been graduated from American universities. A sample of the translations (approximately five percent) was checked for accuracy by an official translator of the local civil court. The only major discrepancy he discovered was that a home-brewing vat had erroneously been labeled a pail.

Scoring was accomplished according to the standardized procedures developed by Torrance for fluency, flexibility, and elaboration. Special scoring guides were prepared for scoring originality, using a sample of 300 booklets produced by children from the six Samoan schools.

Performance on the Figural Tests

The means and standard deviations are reported by grade in Table 56 for the entire Samoan sample along with similar data on the U.S.A. Comparison group. From this table, it will be noted that at most grade levels the differences between the two samples are relatively small except on elaboration. On fluency there are tiny year by year gains except between the fourth and fifth grades, but there is actually little growth after the third grade just as in the U.S.A. sample. On fluency, there is a similar trend except that the drop occurs between the third and fourth grades. The trends for originality and elaboration are the same as for fluency.

The t-tests to determine the level of significance of the differences in the means of the two samples on the figural tests are shown in Table 57. It will be noted

Table 56

Means and Standard Deviations by Grade of Western Samoan and U.S.A. Comparison Group Samples on Figural Tests of Creativity

Sample and Grade		No.	Fluency		Flexibility		Originality		Elaboration	
			Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A.	1st.	72	13.80	4.12	11.07	3.14	11.78	8.31	45.92	17.92
W. Samoan	1st.	184	12.18	7.64	8.52	4.17	10.43	7.11	11.20	7.74
U.S.A.	2nd.	123	17.33	5.27	12.99	3.16	14.75	7.75	56.94	17.72
W. Samoan	2nd.	161	13.88	5.10	11.04	3.01	11.50	5.86	18.09	9.27
U.S.A.	3rd.	131	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
W. Samoan	3rd.	168	15.02	6.63	12.73	8.78	11.74	6.74	16.80	9.17
U.S.A.	4th.	72	15.83	4.22	12.63	3.22	13.04	6.97	46.82	15.23
W. Samoan	4th.	214	15.53	5.85	12.07	3.45	13.96	6.01	19.42	8.93
U.S.A.	5th.	144	16.91	5.50	13.64	4.19	19.29	8.46	55.85	18.36
W. Samoan	5th.	170	15.41	4.85	12.68	2.96	13.69	5.47	19.62	8.25
U.S.A.	6th.	73	17.45	4.89	13.68	3.58	18.20	8.19	66.10	18.99
W. Samoan	6th.	175	15.91	4.60	13.03	2.92	16.81	7.73	18.80	7.43

Table 57

Tests of Significance of the Differences in Means between the Western Samoan and U.S.A. Comparison Groups on Figural Tests of Creative Thinking

Grade	Fluency		Flexibility		Originality		Elaboration	
	t-Ratio	p	t-Ratio	p	t-Ratio	p	t-Ratio	p
1st.	2.16	<.05	4.55	<.01	1.23	NS	21.30	<.01
2nd.	5.56	<.01	16.25	<.01	4.06	<.01	7.60	<.01
3rd.	3.17	<.01	-0.05	NS	3.59	<.01	20.99	<.01
4th.	0.60	NS	4.00	<.01	-1.05	NS	17.79	<.01
5th.	2.94	<.01	2.66	<.01	8.00	<.01	26.25	<.01
6th.	2.33	<.05	1.47	NS	1.25	NS	27.82	<.01

that six of the 24 differences are not statistically significant at the .05 level, showing that the superiority of the U.S.A. sample over the Western Samoan sample is not entirely consistent. In no case, however, is there a statistically significant difference in favor of the Samoans.

The tests of linearity of the profiles of the Samoans on the figural tests is shown in Table 58. The lack of linearity is apparently due to the fact that in general little growth occurred after the third grade.

Table 58

Tests of Linearity of the Profiles of the Samoan Sample on the Figural Tests of Creative Thinking Tests

Measure	Combined F-Ratio	Combined p
Fluency	7.52	$<.01$
Flexibility	7.86	$<.01$
Originality	5.18	$<.01$
Elaboration	28.46	$<.01$

Performance on the Verbal Tests of Creative Thinking

The means and standard deviations of the Western Samoan and U.S.A. comparison samples on the Ask Questions Test are shown in Table 59.

Table 59

Means and Standard Deviations by Grade of Western Samoan and U.S.A. Comparison Group Samples on Ask Questions Test

Sample and Grade		No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A.	3rd.	79	9.22	4.75	6.58	3.01	10.54	7.51
W. Samoan	3rd.	163	3.13	2.31	2.21	1.33	3.15	2.69
U.S.A.	4th.	72	4.51	2.55	3.81	1.66	3.96	3.35
W. Samoan	4th.	209	3.33	2.23	2.99	1.82	3.11	2.99

Table 59 (Continued)

Sample and Grade		No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A.	5th.	144	7.80	3.95	5.55	2.27	5.61	3.90
W. Samoan	5th.	137	3.80	1.84	3.20	1.51	4.07	3.00
U.S.A.	6th.	73	7.16	3.11	5.75	2.50	5.51	3.89
W. Samoan	6th.	175	3.93	2.34	3.13	1.67	4.07	3.43

In this table it will be seen that the superiority of the U.S.A. sample over the Samoans is more consistent than on the figural tests. Again, it will be noted that the Samoans show relatively little growth after the third grade.

The tests of significance of the differences in means for the two samples on the Ask Questions Test are included in Table 60.

Table 60

Tests of Significance of the Differences in Means between the Western Samoan and U.S.A. Comparison Group Samples on the Ask Questions Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	5.30	<.01	12.49	<.01	8.49	<.01
4th.	3.37	<.01	3.42	<.01	2.13	<.05
5th.	10.40	<.01	13.53	<.01	3.76	<.01
6th.	8.94	<.01	13.10	<.01	6.90	<.01

It will be noted that all of the differences on this test task are statistically significant at the .05 level or better.

Table 61 presents the results on the Guess Causes Test for the two samples. The picture here is essentially the same as for the Ask Questions Test. The Samoans seem to develop their ability to think causally even more slowly than do the children in the U.S.A. comparison school.

Table 61

Means and Standard Deviations by Grade of Western Samoan and U.S.A. Comparison Group Samples on Guess Causes Test

		Fluency		Flexibility		Originality	
Sample and Grade	No.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U.S.A. 3rd.	79	4.03	4.36	3.01	1.58	4.62	3.72
W. Samoan 3rd.	163	1.69	1.48	1.28	0.96	2.44	1.14
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
W. Samoan 4th.	209	1.66	1.34	1.41	1.04	1.37	1.72
U.S.A. 5th.	144	5.08	4.14	3.19	1.92	4.69	4.47
W. Samoan 5th.	137	2.43	1.71	1.91	1.20	2.03	2.03
U.S.A. 6th.	73	4.77	2.71	2.84	1.18	5.33	3.95
W. Samoan 6th.	175	2.75	1.69	2.12	1.14	2.57	2.09

The tests of significance of the differences in means of the Guess Causes Test are presented in Table 62.

Table 62

Tests of Significance of the Differences in Means between the Western Samoan and U.S.A. Comparison Group Samples on the Guess Causes Test

	Fluency		Flexibility		Originality	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	4.68	<.01	8.65	<.01	4.27	<.01
4th.	11.88	<.01	12.64	<.01	15.24	<.01
5th.	18.93	<.01	21.33	<.01	6.49	<.01
6th.	9.18	<.01	4.24	<.01	2.76	<.05

Again, it will be noted all of the differences are statistically significant at the .05 level or better.

The results of the performance of the two samples on the Guess Consequences Test are included in Table 63.

Table 63

Means and Standard Deviations by Grade of Western Samoan and U.S.A. Comparison Group Samples on Guess Consequences Test

Sample and Grade		No.	Fluency		Flexibility		Originality	
			Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U.S.A.	3rd.	79	6.19	3.36	4.05	1.89	8.70	6.52
W. Samoan	3rd.	163	2.05	1.64	1.40	1.04	1.57	9.51
U.S.A.	4th.	72	3.24	2.09	2.50	1.46	3.99	2.93
W. Samoan	4th.	209	2.35	1.77	1.74	1.11	1.40	1.63
U.S.A.	5th.	144	6.04	4.12	3.58	2.20	5.75	4.98
W. Samoan	5th.	137	3.28	2.26	2.34	1.35	1.80	2.13
U.S.A.	6th.	73	5.16	2.14	3.59	1.40	5.77	3.51
W. Samoan	6th.	175	3.23	1.79	2.31	0.99	1.94	2.15

The picture is very much the same here as for the Ask Questions Test. Both groups appear to be able to think from cause to possible effects better than from effect back to possible causes.

The tests of significance of the observed differences in means on the Guess Consequences for the two samples are presented in Table 64.

Table 64

Tests of Significance of the Differences in Means between the Western Samoan and U.S.A. Comparison Group Samples on the Guess Consequences Test

Grade	Fluency		Flexibility		Originality	
	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	10.10	<.01	3.73	<.01	9.51	<.01
4th.	3.08	<.01	6.91	<.01	8.93	<.01
5th.	6.90	<.01	5.63	<.01	8.59	<.01
6th.	3.73	<.01	8.00	<.01	10.35	<.01

It will be noted that all of the differences are significant at the .05 level or better.

The means and standard deviations on the Product Improvement Test for the two samples are shown in Table 65.

Table 65

Means and Standard Deviations by Grade on Product Improvement Test for Western Samoan and U.S.A. Comparison Groups

Sample and Grade		No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A.	4th.	72	7.62	4.18	3.75	1.62	6.49	5.63
W. Samoan	4th.	209	1.85	1.65	1.07	0.77	1.27	1.69
U.S.A.	5th.	144	9.30	5.23	4.46	1.89	8.66	6.79
W. Samoan	5th.	137	2.10	2.15	1.39	1.41	1.87	2.53
U.S.A.	6th.	73	10.76	4.98	5.25	1.76	9.11	5.76
W. Samoan	6th.	175	3.09	2.60	1.87	1.31	2.63	2.78

It will be noted that there are year by year gains on all of these measures for both the Samoan and U.S.A. children.

The tests of the significance of these differences are given in Table 66.

Table 66

Tests of Significance of Differences in Means by Grades on Product Improvement Test for Western Samoan and U.S.A. Comparison Samples

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
4th.	16.08	$<.01$	19.14	$<.01$	9.85	$<.01$
5th.	15.00	$<.01$	15.30	$<.01$	10.94	$<.01$
6th.	15.65	$<.01$	16.10	$<.01$	11.78	$<.01$

As anticipated, the differences are all statistically significant in favor of the U.S.A. sample at a high level. The Samoans performed at a particularly low level on this task.

Table 67 presents the means and standard deviations for the two samples on the measures derived from the Unusual Uses Test.

Table 67

Means and Standard Deviations by Grade of Western Samoan and U.S.A. Comparison Samples on Unusual Uses Test

Sample and Grade	No.	Fluency		Flexibility		Originality	
		Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
W. Samoan 4th.	209	0.51	0.70	0.49	0.67	0.37	0.93
U.S.A. 5th.	144	10.95	9.04	5.08	3.43	9.58	8.54
W. Samoan 5th.	137	1.69	1.23	1.39	1.08	0.98	1.38
U.S.A. 6th.	73	11.34	6.10	4.82	2.30	7.11	6.05
W. Samoan 6th.	175	1.81	1.54	1.57	1.25	1.50	1.99

Again, the performances of the Samoan children appear to be unusually poor and the scores reflect little growth over the three-year period.

Table 68 presents the t-ratios and their levels of significance. As the magnitude of the differences and

Table 68

Tests of Significance of Differences in Means by Grades on Unusual Uses Test for Western Samoan and U.S.A. Comparison Samples

Grade	Fluency		Flexibility		Originality	
	t-Ratio	p	t-Ratio	p	t-ratio	p
4th.	13.33	<.01	13.80	<.01	13.81	<.01
5th.	12.03	<.01	12.30	<.01	11.78	<.01
6th.	13.05	<.01	14.77	<.01	10.79	<.01

the smallness of the standard deviations would cause us to expect, all of the differences are statistically significant at a high level.

The comparative data on performances on the Consequences Test are shown in Table 69.

Table 69

Means and Standard Deviations by Grade of Western Samoan and U.S.A. Comparison Samples on Consequences Test

Sample and Grade		No.	Fluency Mean	Fluency St.Dev.	Originality Mean	Originality St.Dev.
U.S.A.	5th.	144	7.37	3.40	4.51	3.35
W. Samoan	5th.	137	5.85	2.76	4.77	3.16
U.S.A.	6th.	73	8.04	3.66	5.51	4.12
W. Samoan	6th.	175	6.79	3.11	5.79	3.75

Here the Samoan children show up surprisingly well, especially on originality. Certainly, they performed comparatively better on this task than on any of the other verbal tests. One can only speculate concerning the reason for this. It may be that their culture has prepared them better for this "just suppose" kind of playful thinking than for thinking imaginatively about improving the toy stuffed dog and thinking of unusual uses for it.

The tests of significance of the differences in means are shown in Table 70.

Table 70

Tests of Significance of the Differences in Means on the Consequences Test for the Western Samoan and U.S.A. Comparison Samples

Grade	Fluency t-Ratio	Fluency p	Originality t-Ratio	Originality p
5th.	9.78	<.01	-0.67	NS
6th.	2.66	<.05	-0.51	NS

While the U.S.A. children maintained a significant level of superiority over the Samoan children on fluency, the differences were actually in favor of the Samoan children on originality, though not significantly so.

Table 71 presents the tests of linearity of the mean profiles for the Western Samoans on the verbal tests.

Table 71

Tests of Linearity of Mean Profiles for Western Samoan Sample on Verbal Tests

Measure	Ask		Causes		Consequences	
	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	0.00	NS	3.74	$<.05$	5.51	$<.01$
Flexibility	3.58	$<.05$	0.00	NS	6.40	$<.01$
Originality	0.00	NS	21.94	$<.01$	0.00	NS

As with the figural tests, the departures from linearity are apparently due to a comparative failure of the Samoans to show growth after the third grade.

Comparative Performance in Mission and Government Schools

Using a slightly different but essentially similar system of scoring, Johnson (1963) studied the differences in development between the mission schools and the government schools. Using total raw scores, Johnson found by analysis of variance that there was no fourth grade slump on either the figural or verbal measures. On both the figural and verbal measures he found that the means show a difference which is statistically significant at the .01 level. When the entire Samoan sample is considered, the means increase steadily grade by grade and show no sudden change at any one grade level. Beginning with the first grade, he obtained figural means as follows: 30.24, 29.68, 40.44, 43.19, 45.78, and 50.67. Beginning with the third grade, the verbal means were as follows: 36.79, 46.70, 61.75, and 64.57.

The mean profiles on the figural tests of the mission and government school samples are shown in Figure 19. Using an analysis of variance procedure,

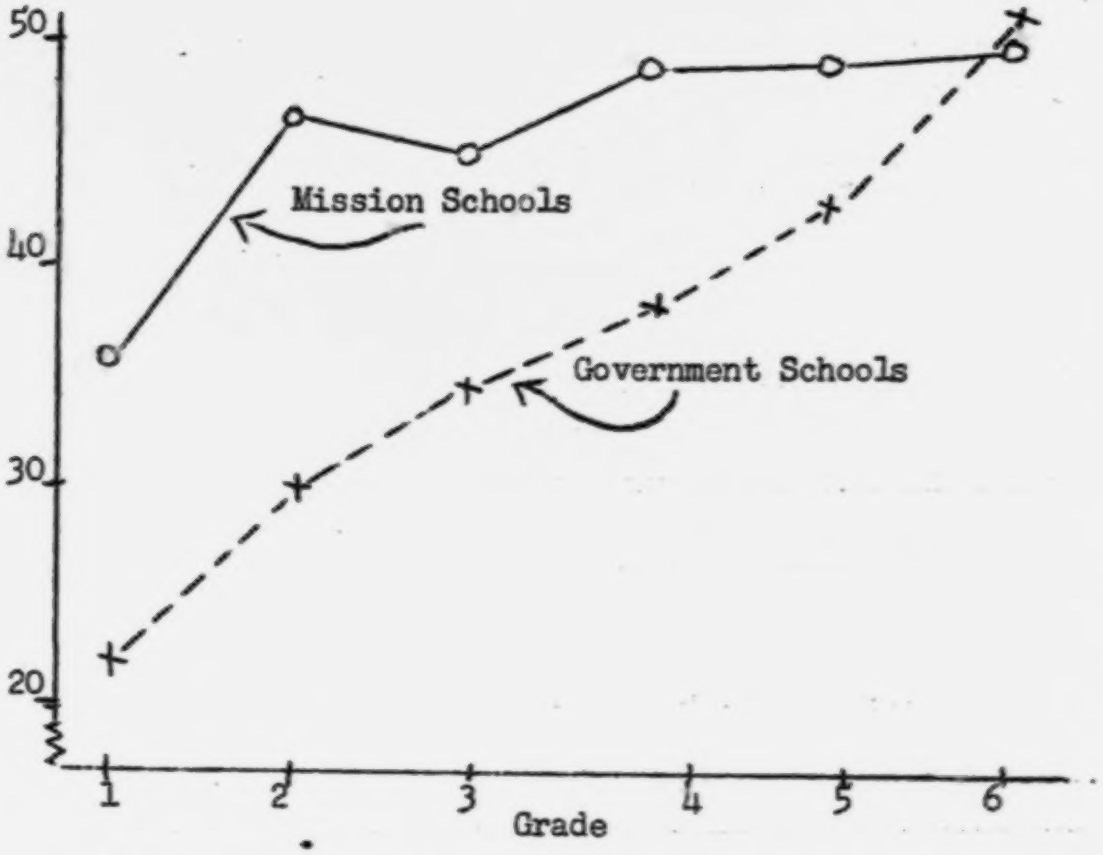

Figure 19. Mean Profiles of Government and Mission Schools in Western Samoa on Figural Tests of Creative Thinking (Johnson, 1963)

Johnson found that the overall differences are significant at the .01 level. In figure 19, it will be noted that there is a slight drop for the third grade in the mission school and almost levels off after this point. In the government schools, however, growth seems to be steady and at the end of the sixth grade, performance equals performance in the mission schools.

The mean profiles on the verbal tests of the pupils in the two school systems are shown in Figure 20. Applying an analysis of variance technique, Johnson found that the differences between the two systems, among grades, and of interaction were all significant at the .01 level. In the mission schools, growth seems to be continuous until the sixth grade. In the government schools, however, growth seems to be quite continuous throughout this period.

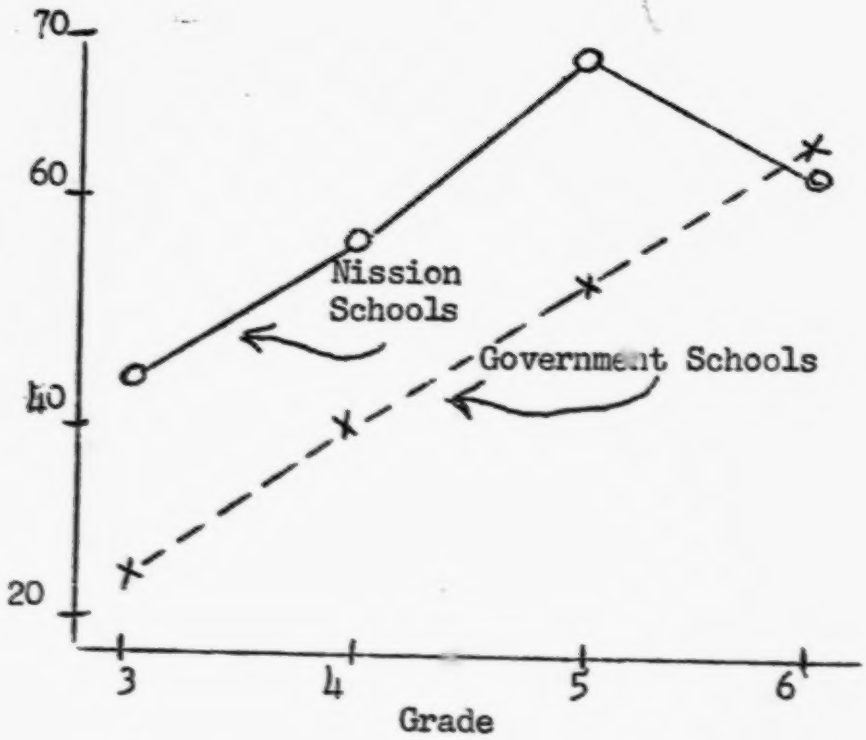

Figure 20. Mean Profiles of Government and Mission Schools in Western Samoa on Verbal Tests of Creative Thinking (Johnson, 1963)

Figure 21 presents the mean profiles for figural originality for the mission and government schools. Here, the drop at the end of the third grade (since the testing was done during the last month of the school term) appears to be more pronounced than in the total figural measure as shown in Figure 19.

Johnson also studied the influence of teachers from the United States on the developmental curves in the mission school where one teacher at each grade level was Samoan and the other was American. The mean profiles of the pupils taught by the Samoan teachers and by the American teachers are shown in Figure 22. It will be noted that the slump at the end of the third grade would appear to be due to the influence of American-style teaching, although there seem to be slumps in the fifth and sixth grades under the Samoan teachers. By analysis of variance, Johnson found that the differences between grades, when they were separated by teacher nationality, were significant at the .01 level. A simple t-test between the second and third grade means of the pupils of the American teachers was significant at the .05 level.

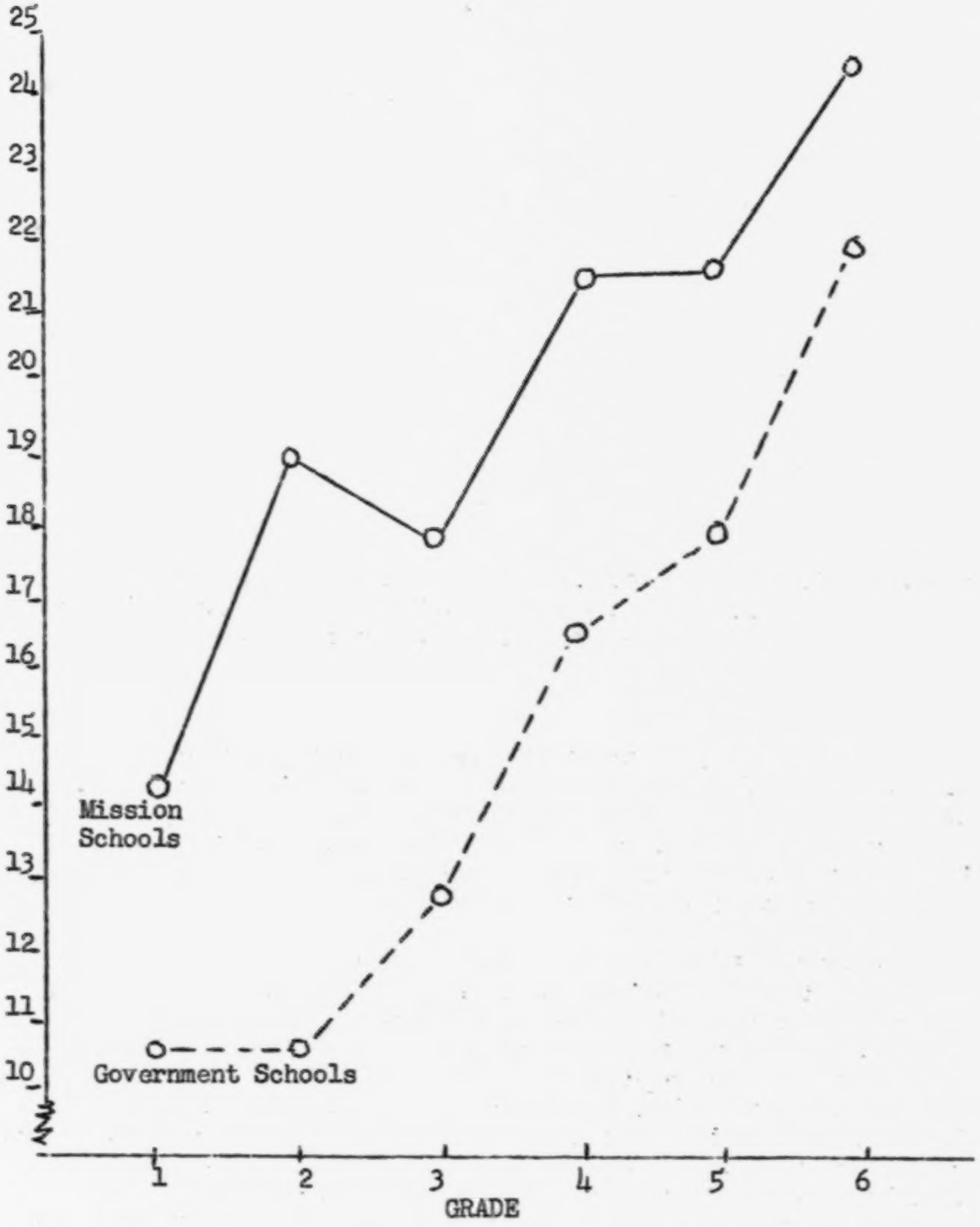

Figure 21. Mean Profiles for Originality on Figural Tasks of Remote Government Schools and More Urban Mission Schools (Johnson, 1963)

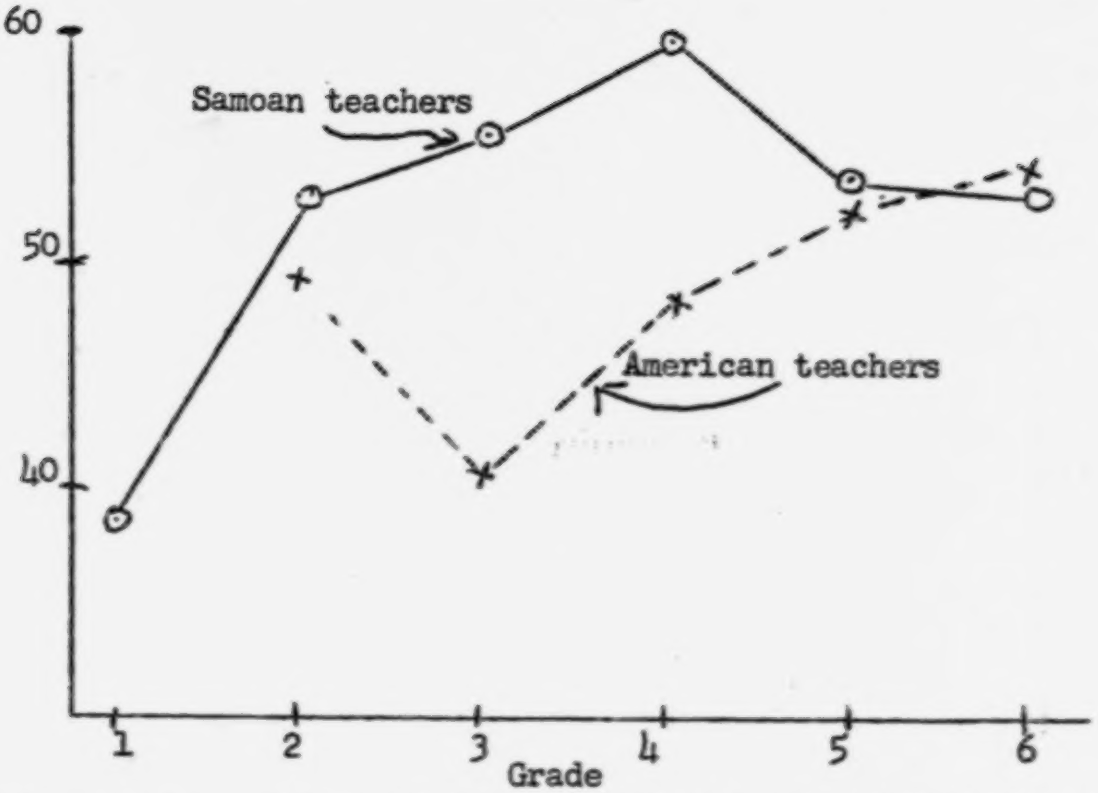

Figure 22. Class Means for Pupils Taught by Samoan and American Teachers in One Mission School on the Figural Tests of Creative Thinking (Johnson, 1963)

Johnson (1963, p. 70) pointed out that the tendency for the pupils of the native Samoan teachers to score higher than the pupils of the American teachers fits into the idea that cultural discontinuities reduce the level of creative functioning. The Samoan culture, though lacking in stimuli that facilitate creativity, is characterized by a high degree of continuity. In contrast to this, Johnson points out, the American teachers bring considerable discontinuity. Authority relationships are modified and pupils have to play different roles in the American-type classroom than in their everyday world. They are expected to "discuss" things with their peers and teachers, yet they also have to memorize the correct answers for the school leaving examinations. In Johnson's opinion the Samoan teachers in this school were among the more effective native teachers on the island. They also provided considerable enrichment material. One would hypothesize that the native teachers were able to reduce the stressfulness of the discontinuity exerted by attendance at an American school. Whatever the reasons, the pupils of the Samoan teachers in this school achieved higher scores on the tests of creative thinking than in any of the other five schools included in this study.

The mean profiles for the verbal tests are presented in Figure 23.

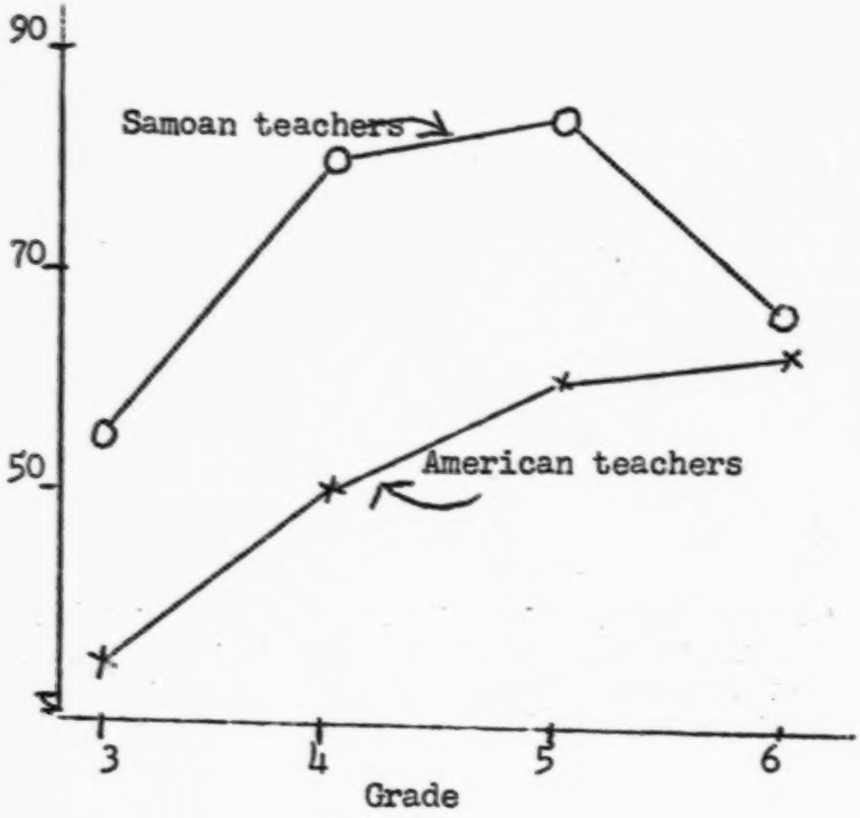

Figure 23. Class Means for Pupils Taught by Samoan and American Teachers in One Mission School on Verbal Tests of Creative Thinking (Johnson, 1963)

Johnson found that the differences both between types of teachers and among grades was significant at better than the .01 level of confidence. The drop under the sixth grade Samoan teacher was non-significant when Duncan's method was used and barely significant at the .05 level using a two-tailed t-test. Johnson pointed out that the sixth grade teacher was actually trained in New Zealand and was regarded as being the "most American" of the Samoan teachers. The other Samoan teachers, for example, wore Samoan dress, while this teacher wore European clothing and had adopted European manners.

Relative Functioning of Different Creative Thinking Abilities

As was done in connection with the U.S.A. Negro and Australian data the mean scores of the Samoan fourth graders were converted to standard scores based on data from U.S.A. fourth graders so that comparisons can be made among the different creative thinking abilities assessed. The results of this transformation are summarized in Figure 24.

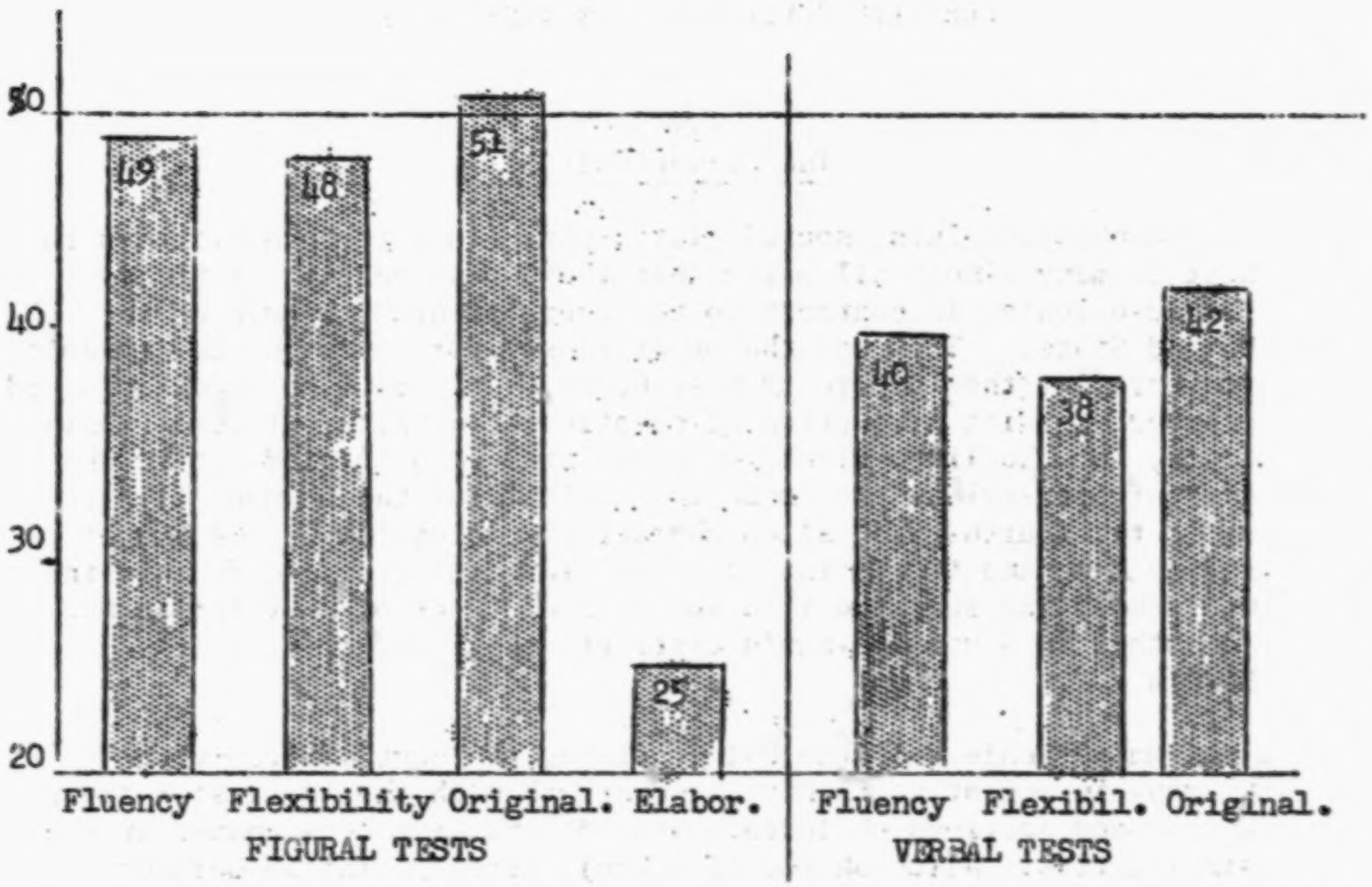

Figure 24. Mean Scores of Fourth Grade Pupils in Western Samoa Converted to Standard Scores Based on U.S.A. Comparison Group Data

The picture presented in Figure 24 is very similar to that obtained for the U.S.A. Negro sample. Elaboration is the poorest developed function in both samples. Otherwise, the figural abilities are decidedly stronger than the verbal ones. There is a slight tendency for the Negroes to perform somewhat better than the Samoans on the figural tests and somewhat more poorly on the verbal tests. It can be said of both the Negroes and the Samoans, however, that they exhibit considerable impoverishment on the verbal tests and on figural elaboration. They perform disproportionately better on figural fluency, flexibility, and originality.

Chapter 7

CREATIVE DEVELOPMENT IN WEST GERMANY

The German Culture

Anthropologists, sociologists, psychologists, and visitors to West Germany almost all agree that the German culture is highly father-oriented in contrast to the peer-oriented culture of the United States. This was the major reason for selecting two schools to represent the culture of West Germany. Germany has been renowned, however, for its production of creative scientists, writers, musicians, and the like. Thus, we were interested to find out if the lack of peer-orientation made it possible for the German child to avoid the fourth-grade slump characteristic of the United States and at the same time maintain a high level of creative functioning. One school was selected in a suburban district of West Berlin and the other in a working-man's district, the inner-city of West Berlin.

Many people from the United States who have visited West Germany in recent years have been struck with the contrast between German and American children, while others have been amazed at the similarities. Alice Shabecoff (1966), after living in Germany with her husband and two children wrote, "German children are about as different from American children as it is possible to be without changing species." She characterized German children as obedient (even docile), helpful, mild tempered, good eaters, and uncomplaining walkers. According to Mrs. Shabecoff, American children, in comparison, seem boisterous, undisciplined, volatile, and lazy. They are also more natural, more honest, and more independent than German children. She, like others, pointed out the very best of the German parent-child relationship is that the parents are boss and that the child does what he is told. She described a German doctor's treatment of her slightly feverish son. The doctor admonished him, "I am older and wiser, you are little and dumb. You do what I tell you to do."

Mrs. Shabecoff described an interview with a well-known German child specialist, Dr. Carl Bennholdt-Thomsen. She quotes him as saying, "In social living, one must live with rules. Children must have consideration for us parents, as they must later for society. It makes living more comfortable." She identified "adaptation" as another basic dimension on which German and American children differ. American parents frequently adapt their schedules to their children's schedule and desires.

In Germany, it is the child who does the adapting. "Consistency" is a third variable on which they differ. In Germany, "what is forbidden one time must be forbidden forever; what is permitted one time must be permitted forever." Mrs. Shabecoff and German psychologists and sociologists have cited many evidences of change but all have agreed that it will take many years before the general population is influenced greatly by the changing economic and sociological conditions.

Both German (Freud, 1960) and American (Young, 1944) psychologists have long emphasized the importance of the family and the patriarchal system in German culture. Describing the pre-World War II German personality, Kimball Young (1944) concluded that the basic training of the individual German child in security and ego-expansion comes in the family, under a stern, patriarchal system. The mother indulged the child but at the same time insisted upon obedience, orderliness, and respect for authority. He maintained that the severity of this training increased as the child grew older and passed into the hands of the father and other masculine influences. Rebellion to this discipline and control was suppressed at first but was soon given an outlet in culturally conditioned conceptions of Germany's "sacred mission."

Howard Becker (1951), writing with a post-World War II perspective, saw the German family as changing somewhat but still powerful in the development of personality. He wrote, "Facing it coldly, I am prepared to say that German family life seems to be of a kind in which parents have more control of children, through persuasion as well as command, than appears to be the case in the United States today" (p. 13). He also described the German family as more authoritarian than the American family and quite comparable with American family structures a generation or two ago.

Schaffner (1958), writing seven years later than Becker and only about two years before the collection of our data, reemphasized earlier conclusions that "the word of the German father is an inflexible law in the family." In a survey of 2,000 Germans, he found that 73 percent approved the above statement. Schaffner (1958, p. 46) concluded that on few points, if any, does the typical German child come to know the meaning of freedom. He maintained that the child's own free fantasy is discouraged by the system of training and education. The German child, according to him, is not taught to express himself as an individual but to make himself like the German ideal. He is taught to concentrate all of his energies on the task at hand and to disregard related problems that might be of interest but for which no solution is demanded by parents or teachers.

Schaffner contended that industry, thoroughness, and attention to detail are used by the German child to reduce anxiety and fear. He saw this process as being reinforced in school, where learning is acquired through memorizing, and memorizing through much repetition. The German child learns through reward and punishment that obsessive, industrious hard work is an accepted and satisfying way of life, according to Schaffner (p. 44). In the upbringing of the German boy, manliness is greatly emphasized. "Manliness" as defined in German culture, according to Schaffner (p. 54) requires the suppression of tenderness, fear, pity, and regret, and encourages the forceful expression of anger and temper.

A basic German personality characteristic, according to Schaffner (p. 53), is a dislike for disorder acquired at a very early age. This, Schaffner believes, helps to explain the German adult's rigidity and fear of change, his stubbornness and resistance to reform, and their energy in rebuilding after World War II.

Psychological studies of German children and college students support in most respects the conclusions of sociologists. A study (Anderson, Anderson, Cohen, and Nutt, 1959; Anderson and Anderson, 1961) was designed to test hypotheses concerning such cultural values as confidence, trust, respect for property, responsibility, honesty, social intervention in interpersonal relations, and social creativity. The findings of this study relative to the German children largely support the picture already sketched in this chapter. In response to the Andersons' "Lost Composition," the German children characteristically wrote stories in which the teacher did not believe the child. The children in the three German locations, more frequently than in any of the other groups, have the child to tell a lie.

Alfert (1959), using multiple-score personality tests, found a remarkable similarity between American and German university students. The German students were more masculine than their American counterparts but no more dominant nor confident.

German educators and psychologists especially concerned about the education of gifted children and youth (Schairer, 1962; Bierfelder, 1962) have expressed a concern about the development of creative talent, but German educators and psychologists generally have not been interested in new developments concerning the measurement and development of the creative thinking abilities. Schairer (1962, p. 273), in describing the aims of the German Institute of Talent Study in Cologne, asserted that the main aim of this Institute has been to awaken in leaders of industry a sense of responsibility for finding and promoting creative abilities at all levels among their workers and staff members. Bierfelder (1962, p. 465) took the position that creative ability is rare and creative persons form only a small proportion of any community. He pointed out, however, that intelligence as measured by intelligence tests is not the only kind of talent of concern in talent development and conceded that other abilities are perhaps more decisive in judging suitability for management in industry.

Let us see now how the data supplied by West Berlin elementary school teachers reflect the cultural characteristics outlined in the foregoing paragraphs.

Characteristics of the Ideal Pupil in West Berlin

Ninety-three West Berlin elementary school teachers, including those in the two subject schools, responded to the Ideal Pupil Checklist. The comparative rankings derived from the responses of these 93 teachers, the expert panel, and the 1512 United States teachers are presented in Table 72.

Table 72

Comparative Rankings of Ideal Pupil Characteristics by German Teachers, Expert Panel, and United States Teachers

Characteristics	Expert Panel (N=10)	United States (N=1512)	Germany (N=93)
Adventurous	11.5	19	10.5
Affectionate, loving	41	32	46
Altruistic, good of others	48	36	22
Always asking questions	13	38	30
Attempting difficult jobs	18	20	5
A self-starter	11.5	12	14.5
A good guesser	16	53	45
Bashful	60	56	53
Becomes preoccupied	8	41	12
Considerate of others	45	1	16
Critical of others	39	46	29
Courageous in convictions	1	22	25.5
Courteous	56	8	18.5
Curious	2.5	4	7

Continued

Characteristics	Expert Panel	United States	Germany
Competitive	44	34	18.5
Desires to excel	37	21	55
Determined	16	6	27.5
Domineering	51	61	58
Disturbs class organ. and procedures	36	60	62
Does work on time	56	13	10.5
Emotional	34	50	51
Emotionally sensitive	14	43	42
Energetic	20.5	14.5	31
Fault-finding	43	58	61
Haughty self-satisfied	61	62	59
Healthy	46.5	7	8.5
Independent in judgement	4.5	16	6
Independent in thinking	2.5	2	4
Intuitive	6	30	37
Industrious	31	9	3
Likes to work alone	28	44	36
Never bored	25	40	32
Nonconforming	26	51	34.5
Negativistic	53	59	56
Obedient	58.5	25	24
Popular, well-liked by peers	49.5	28	20

Continued

Characteristics	Expert Panel	United States	Germany
Persistent	8	23	23
Prefers complex tasks	22.5	39	38
Physically strong	52.5	37	39
Quiet	52.5	48	34.5
Receptive to ideas of others	34	11	25.5
Regresses occasionally	28	49	52
Reserved	49.5	47	44
Remembers well	31	24	13
Self-confident	19	10	8.5
Self-assertive	28	42	33
Self-sufficient	20.5	31	42
Sense of humor	22.5	3	2
Sense of beauty	31	17	27.5
Sincere	25	5	1
Spirited in disagreement	34	45	42
Strives for distant goals	16	26	49
Stubborn	39	57	57
Sophisticated	42	54	50
Timid	58.5	55	54
Thorough	24	18	14.5
Talkative	46.5	52	60
Unwilling to accept say so	8	35	47
Visionary	10	27	48
Versatile, well-rounded	39	14.5	17
Willing to take risks	4.5	29	21
Willing to accept judgment of authorities	62	33	40

It will be noted immediately, that these rankings by West Berlin teachers do in fact support most of the picture given by others. There is a tendency to deny the importance of obedience, but there is great emphasis on industriousness, sincerity, attempting difficult jobs, and thoroughness. There is an unexpected emphasis on independence in thinking, sense of humor, and curiosity. A factor analysis of the responses of the West Berlin teachers, however, revealed a dominant factor heavily loaded with the obedience characteristics. This factor emerges as the dominant one and might be regarded as reflecting "national character." The varimax factor loadings on this factor are as follows:

Industrious	.76
Never bored	.86
Obedient	.88
Popular, liked by peers	.75
Prefers complex tasks	.77
Physically strong	.79
Quiet	.90
Reserved	.82
Remembers well	.73
Self-confident	.73
Self-assertive	.74
Self-sufficient	.74
Sense of humor	.71
Sense of beauty	.80
Sincere	.74
Sophisticated	.79
Thorough	.70
Visionary	.76
Versatility	.73
Willing to accept judgments of authorities	.74
Strives for distant goals	.81
Healthy	.69
Independent in thinking	.61
Likes to work alone	.644
Persistent	.63
Spirited in disagreement	.68
Stubborn	.64

Factor 2 is loaded with: attempting difficult jobs (.80), independent in thinking (.58), non-conforming (.43), and receptive to ideas of others (.49). Factor 3 has negative loadings with altruistic (.79) and becomes preoccupied with tasks (.69). Factor 4 is negatively loaded with courteous (.77) and desires to excel (.61). Factor 5 has a negative loading for affectionate (.37) and a positive loading with courageous (.88). Factor 6 is negatively loaded with domineering (.71), intuitive (.54), and negativistic (.69). Factor 7 contains negative loadings for adventurous (.46), self-starter (.86), determination (.48), and domineering (.43).

Factor 8 has loadings with disturbs class organization and procedures (.71), energetic (.50), fault-finding (.64), and haughty and self-satisfied (.64).

When the rankings of the German teachers are correlated with those of the expert panel and the sample of U.S. teachers, we obtain coefficients of correlations of .37 and .81 respectively. These statistics reflect both the similarities and differences between the German and the U.S.A. teachers, since the correlation between these two groups is closer than it is between the U.S.A. teachers and teachers in other countries but smaller than between various samples of teachers within the U.S.A. One is also struck by the relatively high correlation between the rankings of the German teachers and the rankings of the experts of the creative personality, when compared with the findings for other cultures.

One gains the impression from these findings that German teachers are placing greater emphasis on independence in thinking and judgment and less emphasis on obedience and quietness than do German parents. For example, Kemmler and Heckhausen (Shabecoff, 1966) asked 110 German mothers, "What traits would you especially value in a 6-year old?" At the top of the list was obedience and at the bottom was friendliness. In total, 89 percent of the traits mentioned could be viewed from the standpoint of obedience to the mother's demands, directions, and supervision; but only seven percent of the mothers mentioned such traits as independence, development following the child's self-acting tendencies, and freedom of development.

Reflections of Culture in Imaginative Stories

The same analysis was made of a sample of 163 imaginative stories by fourth, fifth, and sixth grade children in the two West Berlin schools studied as was reported in Chapter 3 for the U.S.A. Comparison group.

The nature of the stress-seeking efforts reported by the German and U.S.A. children is summarized in Table 73.

Table 73

Nature of Stress-Seeking Efforts Reported in Imaginative Stories by Preadolescents in U.S.A. and Germany

Nature of	U.S.A. (N=200)		Germany (N=163)	
Stress-Seeking	Number	Percent	Number	Percent
Spontaneous, in response to challenge	132	66.0	83	50.9

Table 73 continued

Nature of Stress-Seeking	U.S.A. (N=200) Number	Percent	Germany (N=163) Number	Percent
Provoked, in response to threat, coercion, etc.	30	15.0	40	24.6
Unsuccessful attempt to avoid stress	20	10.0	17	10.4
No stress-seeking, or successful stress avoidance	18	9.0	23	14.1

Compared with other cultures, the pictures for the two groups here are quite similar. There is in the U.S.A. stories a somewhat greater frequency of spontaneous stress-seeking in response to challenge and less frequency of response being provoked by threat or coercion.

The picture with regard to degree of success that the main characters of the story anticipated is shown in Table 74.

Table 74

Degree of Success of Main Character Anticipated in Imaginative Stories by Preadolescents in U.S.A. and Germany

	U.S.A. (N=200)		Germany (N=163)	
Degree of Success	Number	Percent	Number	Percent
Very successful	64	32.0	42	25.8
Moderately successful	44	22.0	33	20.3
Neither successful nor unsuccessful	31	15.5	31	19.0
Unsuccessful but survived	43	21.5	49	30.0
Killed, destroyed	18	9.0	8	4.9

Here again, there is considerable similarity, but there is somewhat less expectation of success in the stories by the German children.

The nature of the response of the environment to the stress-seeking efforts of its members as reported in the imaginative stories is reported in Table 75 for the two groups. Rather marked and statistically significant differences at the .01 level of confidence are observed.

Table 75

Response of Environment to Stress-Seeking Efforts Anticipated in Imaginative Stories by Preadolescents in U.S.A. and Germany

Environmental Response	U.S.A. (N=200) Number	Percent	Germany (N=163) Number	Percent
Supportive	72	36.0	104	63.8
Oppositional	48	24.0	77	47.1

The German children apparently expect more responsiveness, both supportive and oppositional, to stress-seeking efforts. Many of the German children reported both kinds of responsiveness in the same story, with neither clearly predominating. Many of the U.S.A. children failed to mention anything about the responsiveness of the environment, as though they received little feedback from their stress-seeking efforts.

In summary, it might be said that the heroes of the German stories, if not stress-seeking, are certainly stress-encountering, more so than in the Italian, French, and Greek stories with which they were compared in another study (Torrance, in press). One would conclude from the stories of the West Berlin children that it is rarely possible to avoid stress. They are divided, however, between the self-acting and receptive nature of their heroes. About 51 percent of their heroes are pictured as self-acting while about 35 percent of them encounter external stresses. They are also about equally divided between success- and failure-orientations to stress-seeking. The environment emerges as the most responsive of all of the fourteen subcultures studied, being both highly supportive and highly oppositional. The German hero is frequently seen as returning to a lower level of stress.

In a study of German national character, Métraux (1955a) concluded that one of the major purposes of early childhood education in Germany is "to armor the child to face the battle of life." Another purpose is to prepare him to fulfill his life tasks.

Parents are urged to prepare the child to meet the challenges of life's lessons. One of the themes that permeates German child-rearing literature is that the child must learn to obey so that he can be trusted to be alone without endangering himself and master the tasks set by life. A second theme is that the child must learn to become autonomous in order to face life independently of others and to enter into relationships with others. Another theme is that the child must be loved and protected from danger, but must not be spoiled or weakened by overprotection--thus, the unusually high supportiveness and opposition or rejection of the environment experienced by the German heroes in the imaginative stories.

According to Métraux's study (1955a), the German child is trained to expect opposition, difficulties, pain, failure, and opposition. Much emphasis is placed on stages of development and strict sequences of learning tasks. In German child-care literature (Métraux, 1955b), parents are repeatedly told that every misdeed must be followed by punishment and that punishment should be appropriate to the misdeed.

Occupational Choices of West Berlin Children

Table 76 contains a summary of the most popular occupational choices of the West Berlin and U.S.A. Comparison groups by sex.

Table 76

Comparison of Most Popular Occupational Choices or Aspirations of West German and U.S.A. Samples

	West Germany		U.S.A. Sample	
Occupation	Boys (N=103)	Girls (N=116)	Boys (N=2164)	Girls (N=2038)
Actor, actress, entertainer	0.0%	0.9%	0.4%	1.8%
Air hostess, steward	1.0	8.6	0.0	3.8
Artist, cartoonist	3.9	0.9	2.3	2.2
Athlete, professional	6.8	0.0	10.1	0.2
Barber, beautician	0.0	6.0	0.2	1.6
Construction worker, mason, carpenter, etc.	2.9	0.0	2.2	0.0
Engineer	6.8	0.0	6.8	0.0
Farmer, planter, rancher	2.9	0.9	5.9	1.5

Table 76 continued

	West Germany		U.S.A. Sample	
Occupation	Boys (N=103)	Girls (N=116)	Boys (N=2164)	Girls (N=2038)
Housewife, housekeeper	0.0	0.0	0.0	7.4
Lawyer	1.0	0.0	3.6	0.6
Mechanic, electrician	7.8	0.0	2.8	0.1
Medical doctor	1.0	1.8	9.2	3.0
Military, soldier, sailor	0.0	0.0	6.1	0.0
Minister, missionary, etc.	1.0	0.0	1.7	2.7
Musician, singer, etc.	0.0	0.0	0.7	1.6
Nurse	0.0	14.6	0.1	26.4
Operator, truck, bus, etc.	4.9	0.0	2.8	0.1
Pilot, astronaut	1.0	0.0	5.3	0.1
Police, detective, etc.	12.6	0.9	3.8	0.4
Scientist, chemist, etc.	1.0	2.6	8.2	2.6
Secretary, clerk, etc.	1.0	17.2	0.0	6.9
Teacher	5.8	12.0	2.1	30.4
Undecided	11.6	5.2	10.3	6.3
Veterinarian	0.0	0.0	2.6	2.5
Other occupations	23.8	27.0	46.7	25.3

Note: Some subjects expressed more than one choice.

Again, we find striking similarities along with striking differences. Nursing and teaching are not nearly as popular choices of the West Berlin girls as they were among U.S.A. girls. Teaching was somewhat more popular among the Berlin boys than among U.S.A. boys. Somewhat surprisingly, occupations in the sciences and in medicine are not very popular among the Berlin children. Not surprising, of course, is the absence of choices of military occupations. Instead, choices in this area seem to have been replaced by choices of police work. Such choices as mechanic, truck or bus driver, and secretarial or other clerical work tend to be more popular among the Berlin than among the U.S.A. children. Popular choices of the Berlin children not found on the most popular list for the U.S.A. children are: architect for boys (5.8 percent), baker for girls (2.6 percent), cook for boys (2.9 percent), longshoremen for boys (4.9 percent), tailor or seamstress for girls (6.9 percent), salesperson for girls (7.7 percent), and florist for girls (1.8).

In summary it might be said that the occupational choices of the West Berlin children reflect a greater restriction than do those of the U.S.A. children but less restriction than was observed in the choices of the other groups thus far presented in this report.

Comparative Education Studies Involving West Germany

A number of comparative education studies have included West Germany (Reller and Morphet, 1962; Foshay, Thorndike, Hotyat, Pidgeon, and Walker, 1962; Gallup and Hill, 1960). Perhaps most relevant to the present study is the Gallup Hill study conducted at about the same time that our data were obtained. This was a comparison of the educational experiences of ten- and fourteen-year olds in the United States, England, France, Norway, and West Germany. The survey was conducted by Public Opinion Surveys for the Saturday Evening Post in response to hot debates at that time concerning the superiority of education in the United States compared with that in Europe. The data on 10-year olds are quite relevant to the present study because these children would have been in the fourth or fifth grade, the time of the fourth grade slump in the U.S.A. Comparison school. Thus, only these data will be reviewed here.

According to the Gallup and Hill (1960) report the German 10-year old attends school 235 days per year, is absent on account of illness only four of these days and not more than a half-day for other purposes, whereas his American counterpart is in school 178 days each year and is absent for illness on six of them and one day for other purposes. On the average, however, his school day is one hour and ten minutes shorter than for the American 10-year old. On the average he spends one hour and 24 minutes each evening in study while his American counterpart studies for only 39 minutes. In one year he spends over 296 hours in home study compared to 105 hours for the American child.

Twenty-seven percent of the West German compared with 15 percent of the United States 10-year olds fail to take physical exercise during a seven-day period. Fifty percent of them compared to 15 percent of the United States children take long walks or bicycle trips of more than four miles during a seven-day period.

Apparently classroom discipline is better in West Germany than in the U.S.A. Sixty percent of the U.S.A. 10-year olds said that the children in their classes gave their teachers a great deal of trouble by their bad behavior; only 30 percent of the German 10-year olds gave such reports.

On a brief general information test, the West German 10-year olds answered 21 percent correctly compared to 17 percent in the United States. On a brief geography test the German and U.S.A. children answered correctly 22 and 23 percent respectively. On arithmetic, the German children scored 52 percent compared with 43 percent for the U.S.A. children. Forty-seven percent of the German compared with 45 percent of the U.S.A. children said that they had read a book for pleasure during the previous 24 hours. Both the German and U.S.A. children reported that they had on the average written six essays. Sixty-five percent of the German children compared with 43 percent of the U.S.A. children reported that they have to memorize poems, speeches, and other material nearly every week.

The German and U.S.A. children differed markedly in their attitude concerning higher education. Forty-two percent of the U.S.A. children said that they would like to go to college and 45 percent of them expect to go to college compared with two percent and three percent for the West German children respectively. They also differed in their attitudes concerning teaching as a profession. Thirty-four percent of the U.S.A. children and 17 percent of the German children expressed an interest in becoming teachers. These figures agree rather well with the data presented in the preceding section of this report, but both groups reported more interest than was reflected in our data.

When faced with the conflict of obtaining good grades or attaining popularity, 62 percent of the German 10-year olds and 82 percent of the U.S.A. children said that they would choose good grades.

Twenty-one percent of the German and 26 percent of the U.S.A. children took lessons outside of school. Both groups were more likely to take music lessons than any other type of outside instruction.

Seventy-two percent of the German and 96 percent of the U.S.A. 10-year olds attended classes that included both boys and girls.

Ninety percent of the German and 17 percent of the U.S.A. 10-year olds said that they stand up when their teacher comes into the room. Ninety-three percent of the German and 23 percent of the U.S.A. children reported that they stand up when another teacher comes into the room. The two groups liked school equally well. The U.S.A. children worried about tests and examinations more frequently than did the German children -- 55 percent compared with 23 percent. The U.S.A. children reported a greater availability of activities such as orchestra, band, athletic team, school newspaper, and school play than did the German children.

Special awards also seemed to be more plentiful in U.S.A. than in German schools -- 39 compared with 19 percent. The U.S.A. children also reported having more books in their homes than did the German children. The U.S.A. children reported having spent more time on the telephone during the past 24 hours.

The UNESCO study (Foshay, Thorndike, Hotyat, Pidgeon, and Walker, 1962) of the educational achievements of thirteen-year olds in twelve countries also provides some pertinent data. The following relative rankings of West German and U.S.A. thirteen-year olds among the twelve countries reflect some interesting differences in emphasis of the two school systems or cultures:

	W. Germany	U.S.A.
Mathematics	7	8
Reading Comprehension	7	5
Geography	1	9.5
Science	2	1
Non-Verbal Aptitude	11	4

One would infer from these data that both school systems place a great deal of emphasis upon science but that the West Germans place a great deal more emphasis upon geography.

The Two West German Schools

As already described one of the West Berlin schools was located in a working man's district in what might be called the inner city. The entrance of the building faces on a main street and the small playground space is in the courtyard. The building is an old one but appeared to be in good repair. Colorful posters were displayed in the hallways. The school is located right in the middle of a business and housing district. There are shops on the same block as the school and all around the building except for a large park facing the entrance of the school. There are also apartment houses on the same block. For a photograph of the school, see Appendix D. While this school is in the inner-city, it is certainly not located in a slum district. It is not far from the Berlin Wall and its nearby ruins, and is quite near the famous hill constructed by the women of Berlin from the rubble of World War II.

The second school is located in a pleasant and quiet suburban district quite near U.S.A. military installations and in the American sector of Berlin. The school building occupied by this school at the time the data were collected is now the John F. Kennedy School and this school has a modern- new building next door. Questionnaire data obtained from the teachers of this school are available and will be reviewed here. The school had a kindergarten but it was not included in the present study.

The average enrollment per class was 34.8. The number of boys and girls in each class was about the same. In no case was the within-class age range more than one year and there were no differences in the average age of the boys and girls in any class.

The teachers reported no noticeable groupings by age or sex within their classes. Pupils ordinarily selected their own seats. The teachers determined the seating order when it was necessary to maintain discipline. The tendency for children to prefer to work alone rather than together is not pronounced but clearly evident. According to the teachers, there are no cliques within their classes.

The children in this school seemed to have had some experience with individual and group intelligence tests, standardized achievement tests, musical aptitude tests, and the like.

There appear to have been no differences in the art experiences of the boys and girls. In all classes, the regular teacher gives instruction in art. Subjects for drawing lessons are prescribed but are not strictly adhered to or enforced.

All of the teachers reported that their pupils enjoyed taking the tests of creative thinking very much and that there were no noticeable differences in the responses of girls and boys. Some of them asked, "What is going to come of this?"

In terms of time devoted to various aspects of the curriculum, the development of language and mathematics skills appeared to be receiving greatest emphasis. Teachers in the lower grades resisted estimating the amount of time spent on various subjects, insisting that their instruction was indivisible or integrated and not split up into discrete subjects.

Instruction in the first four grades was given only in German, while English was also spoken in the fifth and sixth grades. Instruction in English is offered in these grades.

The teachers in this school did not answer the questions about the educational philosophy of the school, the system of grading and promotion, and the attitudes of pupils concerning grades and promotion.

The average age of the teachers was 48.8 years and all of them had completed at least four years of collegiate training. All of them were women except one. All of them replied that they used a variety of methods, adapted to the subject being treated and the proficiency of the class members. They described their manner of teaching as strong, authoritarian, and with a pervasive bias, but abundantly loving, peevish, and thin-skinned. The teacher who supervised the testing described the teachers of this school as sensitive disciplinarians, generous yet strict in dealings with pupils. The typical teacher is concerned with the student's problems and her manner is friendly.

No pupils were allowed to work independently of the rest of the class. All received the same assignments and no expections were made in the amount or type of work assigned. Pupils of all grades were permitted to ask questions only "within the framework of the lessons assigned."

The method of discipline was determined by the classroom teacher and may include reprimand, censure, "bad marks," staying after class, suspension from group arrangements, reprimands by the head of the school, or transfer to another class. Rewards were not standardized and for the most part they were verbal and not material.

The teachers reported no awareness of sex differences among their pupils in attitudes regarding school, work habits, ease of learning, and the like.

In all classes pupils most often regarded their own and others' performance individually, seldom from the standpoint of the achievement of the group. Generally, teachers believed that their pupils respected their authority as teachers.

They reported that boys and girls competed for honors, grades, and privileges individually. In making evaluations and comparisons the teachers appeared to focus on knowledge acquisition while the pupils focused on skills.

Performance on the Creative Thinking Tests

Some difficulties seem to have been encountered in using slides for the Ask-and Guess and Product Improvement Tests. The pictures of the stimulus materials, however, were passed around the room. It is possible that this irregularity in the testing procedure may have inhibited slightly the performance of some pupils on these verbal tests.

Performance on the Figural Tests

The means and standard deviations of the scores obtained from the three figural tests are reported in Table 77 for the two West German schools and the U.S.A. Comparison group.

Table 77

Means and Standard Deviations by Grade of West German and U.S.A. Comparison Group on Figural Tests of Creativity

Sample and Grade		N	Fluency		Flexibility		Originality		Elaboration	
			Mean	St. Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St. Dev.
U.S.A.	1st.	72	13.80	4.12	11.07	3.14	11.78	8.31	45.92	17.92
W. German	1st.	62	13.78	4.34	11.57	2.53	14.83	5.30	28.53	10.32
U.S.A.	2nd.	123	17.33	5.27	12.99	3.16	14.75	7.75	56.94	17.72
W. German	2nd.	60	13.03	3.08	11.40	2.27	12.22	5.76	30.77	8.90
U.S.A.	3rd.	131	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
W. German	3rd.	70	13.73	3.64	11.99	2.91	13.66	5.97	30.61	12.12
U.S.A.	4th.	72	15.83	4.22	12.63	3.22	13.04	6.97	46.82	15.23
W. German	4th.	67	16.51	3.50	13.69	2.68	15.91	7.38	30.46	10.86
U.S.A.	5th.	145	16.91	5.50	13.64	4.19	19.29	8.46	55.85	18.36
W. German	5th.	63	30.44	8.36	20.46	4.91	22.35	9.59	40.14	18.01
U.S.A.	6th.	73	17.45	4.89	13.68	3.58	18.20	8.19	66.10	18.99
W. German	6th.	66	18.62	5.80	14.95	3.27	20.54	9.82	38.52	15.22

Although little creative development seems to occur between the first and second grades of the West German schools, growth after that point seems to be rather rapid up through the fifth grade where an unusually high peak is reached on fluency, flexibility, and originality. On these three qualities, the performance of the German children equals or excels that of their U.S.A. counterparts. The U.S.A. children maintain their superiority on elaboration throughout the six-year range.

The tests of significance of the differences in means of the two samples on the figural measures are reported in Table 78.

Table 78

Tests of Significance of Differences in Means of German and U.S.A. Samples on Figural Tests of Creative Thinking

	Fluency		Flexibility		Originality		Elaboration	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p	t-Ratio	p
1st.	0.04	NS	1.02	NS	2.56	< .01	7.00	< .01
2nd.	6.94	< .01	3.88	< .01	2.48	< .05	13.28	< .01
3rd.	5.52	< .01	1.59	NS	1.10	NS	8.77	< .01
4th.	-1.01	NS	-2.08	< .05	-2.31	< .05	7.34	< .01
5th.	-11.76	< .01	-11.00	< .01	-2.45	< .05	6.09	< .01
6th.	-1.26	NS	-2.15	< .05	-1.50	NS	9.48	< .01

It will be noted that the Germans excel the U.S.A. children at the .05 level of confidence or better on six of the measures and that the U.S.A. children excel them on eleven measures, six of which are in the elaboration column. On originality, the U.S.A. children excel in the first two grades and the Germans in the fourth and fifth, while the differences are not statistically significant in the third and sixth grades.

Table 79 presents a summary of the tests of linearity of the profiles of the West German group.

Table 79

Tests of Linearity of Mean Profiles of West German Sample on Figural Measures of Creative Thinking

	Males		Females		Sexes Combined	
Measure	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	4.80	< .01	3.50	< .01	16.56	< .01
Flexibility	4.16	< .01	4.86	< .01	17.04	< .01
Originality	6.94	< .01	4.17	< .01	14.00	< .01
Elaboration	2.45	< .05	1.44	NS	3.30	< .05

Here the departure from linearity seems to be due largely to the drop that occurs between the fifth and sixth grades. The mean profile on elaboration falls short of the standards for non-linearity for females and barely meets them for males and sexes combined.

Performance on the Verbal Tests

The means and standard deviations on the Ask Questions Test are reported in Table 80 for the West German and U.S.A. comparison.

Table 80

Means and Standard Deviations by Grade of West German and U.S.A. Comparison Group Sample on Ask Questions Test

Sample and Grade		N	Fluency		Flexibility		Originality	
			Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U.S.A.	3rd.	79	9.22	4.75	6.58	3.01	10.54	7.51
W. German	3rd.	67	3.30	2.32	3.00	1.67	3.3	2.16
U.S.A.	4th.	72	4.51	2.55	3.81	1.66	3.96	3.35
W. German	4th.	61	4.00	2.39	3.90	1.03	2.90	1.78
U.S.A.	5th.	144	7.80	3.95	5.55	2.27	5.61	3.90
W. German	5th.	56	8.77	1.38	6.43	2.82	7.40	2.68
U.S.A.	6th.	73	7.16	3.11	5.75	2.50	5.51	3.89
W. German	6th.	63	9.66	3.18	8.17	3.46	9.70	6.55

While the amount of growth between the third and fourth grades in the German sample is small, there is not a drop except in originality and that is quite slight. Yet this observed departure from the otherwise linear trend is worth noting.

The tests of significance of the differences between the two samples on the Ask Questions Test are shown in Table 81. It will be noted that seven of the twelve differences are in favor of the West Germans and that six of these are statistically significant.

Table 81

Tests of Significance of Differences in Means of the German and U.S.A. Samples on Ask Questions Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	9.70	< .01	8.95	< .01	8.18	< .01
4th.	1.19	NS	-0.38	NS	2.33	< .05
5th.	-2.57	< .01	-2.09	< .05	-3.70	< .01
6th.	-4.65	< .01	-4.61	< .01	-4.45	< .01

The results for the Guess Causes Test are presented in Table 82. The trend here is the same as for Ask Questions.

Table 82

Means and Standard Deviations by Grade of West German and U.S.A. Comparison Groups on Guess Causes Test

Sample and Grade	N	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 3rd.	79	4.03	4.36	3.01	1.58	4.62	3.72
W. German 3rd.	68	2.66	1.26	2.00	0.15	1.80	1.87
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
W. German 4th.	61	2.70	1.58	2.10	1.04	1.80	1.58
U.S.A. 5th.	144	5.08	4.14	3.19	1.92	4.69	4.47
W. German 5th.	56	4.85	1.41	3.04	1.41	2.70	1.87
U.S.A. 6th.	73	4.77	2.71	2.84	1.18	5.33	3.95
W. German 6th.	63	3.50	4.24	3.30	1.37	4.03	8.06

The only drop in the fourth grade is in originality and that is quite slight. There are drops in the sixth grade, however.

Table 83 contains the results of the tests of significance of the differences in means on the Guess Causes Test. It is interesting to note that the German children do not achieve the superiority on this test that they achieved on the Ask Questions Test. Eight differences are in favor of the U.S.A. Comparison group and one in favor of the West Germans at a statistically significant level.

Table 83

Tests of Significance of the Differences in Means of the West German and U.S.A. Comparison Samples on the Guess Causes Test

	Fluency		Flexibility		Originality	
Grade	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	2.67	< .01	5.66	< .01	5.93	< .01
4th.	5.01	< .01	7.23	< .01	4.87	< .01
5th.	0.59	NS	2.45	< .05	4.48	< .01
6th.	2.04	< .05	-2.10	< .05	1.17	NS

Table 84 presents the picture regarding the performance of the two groups on the Guess Consequences Test.

Table 84

Means and Standard Deviations by Grade of West German and U.S.A. Comparison Groups on Guess Consequences Test

Sample and Grade	N	Fluency		Flexibility		Originality	
		Mean	St.Dev.	Mean	St.Dev.	Mean	St. Dev.
U.S.A.	79	6.19	3.36	4.05	1.89	8.70	6.52
W. German 3rd.	68	2.88	0.53	2.23	2.30	2.20	2.23
U.S.A. 4th.	72	3.24	2.09	2.50	1.46	3.99	2.93
W. German 4th.	61	3.70	1.48	2.70	1.64	2.50	1.89

Table 84 continued

Sample and Grade		N	Fluency		Flexibility		Originality	
			Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A.	5th.	144	6.04	4.12	3.58	2.20	5.75	4.98
W. German	5th.	56	6.66	3.46	4.25	0.42	5.42	4.38
U.S.A.	6th.	73	5.16	2.14	3.59	1.40	5.77	3.51
W. German	6th.	63	4.39	2.12	3.80	1.14	4.70	2.72

It will be noted that no drops occur between the third and fourth grades but that one occurs between the fifth and sixth grades.

The tests of significance of the differences in means of the two groups on the Guess Consequences Test are presented in Table 85.

Table 85

Tests of Significance of the Differences in Means of the West German and U.S.A. Comparison Groups on the Guess Consequences Test

Grade	Fluency		Flexibility		Originality	
	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	8.63	< .01	5.19	< .01	8.63	< .01
4th.	1.48	NS	0.74	NS	3.53	< .01
5th.	1.08	NS	-3.50	< .01	0.43	NS
6th.	2.09	< .05	-0.96	NS	2.00	< .05

Here, the U.S.A. can claim six differences in favor of them while the Germans can claim only one at a statistically significant level of confidence.

The results obtained from the Product Improvement Test for the U.S.A. and German groups are shown in Table 86. Here it will be noted that the German children performed rather poorly. It is possible that performance in one of the schools may have been influenced by the poor display of the stuffed toy dog. It is more likely, however, that it is a function of the culture's abhorrence of upsetting and changing something that has been completed.

Table 86

Means and Standard Deviations by Grade on Product Improvement Test of German and U.S.A. Comparison Group Samples

Sample and Grade		No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A.	4th.	72	7.62	4.18	3.75	1.62	6.49	5.63
W. German	4th.	61	5.20	3.18	3.30	1.41	2.30	9.20
U.S.A.	5th.	144	9.30	5.23	4.45	1.89	8.65	6.79
W. German	5th.	56	5.40	3.60	4.40	1.70	4.05	3.60
U.S.A.	6th.	73	10.76	4.98	5.25	1.76	9.11	5.76
W. German	6th.	63	7.07	3.46	4.79	1.51	5.40	1.04

The tests of significance of the differences in means of the two groups are shown in Table 87. It will be noted that the U.S.A. children claimed clear superiority on fluency and originality but not flexibility at all grade levels.

Table 87

Tests of Significance of the Differences in Means of the West German and U.S.A. Comparison Groups on the Product Improvement Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
4th.	5.93	<.01	1.70	NS	3.10	<.01
5th.	6.01	<.01	0.19	NS	6.19	<.01
6th.	5.07	<.01	0.17	NS	5.40	<.01

The results for the Unusual Uses Test are displayed in Table 88. Two observations stand out in this table. The U.S.A. children excel the German children in the fourth and fifth grades, and the German sixth graders do not show the slump that they showed on many of the other measures. In fact, they forge out slightly ahead of them on flexibility and originality.

Table 88

Means and Standard Deviations by Grade of West German and U.S.A. Comparison Samples on Unusual Uses Test

Sample and Grade		No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A.	4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
W.German	4th.	61	1.60	1.54	1.30	1.00	0.84	1.81
U.S.A.	5th.	144	10.95	9.04	5.08	3.43	9.58	8.54
W.German	5th.	56	4.90	4.35	3.70	1.51	3.01	4.80
U.S.A.	6th.	73	11.34	6.10	4.82	2.30	7.11	6.05
W.German	6th.	63	7.04	2.90	5.40	4.74	8.07	6.23

The tests of significance for the differences in means observed in Table 88 are shown in Table 89. The U.S.A. children are clearly out ahead on all of the measures except flexibility and originality in the sixth grade. The differences in these two measures are not statistically significant.

Table 89

Tests of Significance of the Differences in Means of the West German and U.S.A. Comparison Groups on the Unusual Uses Test

Grade	Fluency t-Ratio	Fluency St.Dev.	Flexibility t-Ratio	Flexibility St.Dev.	Originality t-Ratio	Originality p
4th.	8.12	<.01	10.75	<.01	6.82	<.01
5th.	6.36	<.01	3.95	<.01	6.86	<.01
6th.	5.36	<.01	-0.89	NS	-0.91	NS

Table 90 presents the results from the Consequences Test. It will be noted in this table that except for fluency in the fifth grade the two groups are neck and neck.

Table 90

Means and Standard Deviations by Grade of West German and U.S.A. Comparison Groups on Consequences Test

Sample and Grade		No.	Fluency		Originality	
			Mean	St.Dev.	Mean	St.Dev.
U.S.A.	5th.	144	7.37	3.40	4.51	3.35
W. German	5th.	56	4.85	2.80	4.05	2.23
U.S.A.	6th.	73	8.04	3.66	5.51	4.12
W. German	5th.	63	6.93	3.13	5.30	3.01

The tests of significance related to the Consequences Test are shown in Table 91. It will be seen that only on fluency in the fifth grade is a satisfactory level of significance achieved.

Table 91

Tests of Significance of the Differences in Means of the West German and U.S.A. Comparison Groups on Consequences Test

Grade	Fluency		Originality	
	t-Ratio	p	t-Ratio	p
5th.	5.37	<.01	1.13	NS
6th.	1.89	NS	0.34	NS

The tests for linearity of the mean profiles of the West Germans on the verbal tests are shown in Table 92.

Table 92

Tests of Linearity of the Mean Profiles of the West German Group on the Verbal Tests of Creative Thinking

Measure	Male		Female		Sexes Combined	
	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	7.73	<.01	31.83	<.01	17.85	<.01
Flexibility	4.46	<.01	12.40	<.01	4.98	<.01
Originality	4.22	<.01	6.05	<.01	15.25	<.01

The departures from linearity on the verbal tasks would appear to be due largely to the drop in the sixth grade on most of the test tasks.

Relative Levels of Functioning on the Tests of Creative Thinking

To compare the relative levels of functioning on the different figural and verbal measures of creative thinking raw scores were converted to standard scores for the fourth grade, basing the standard scores on data from the U.S.A. fourth grade. The results are pictured in Figure 25. This figure reflects the neck-to-neck standing of the two samples. On the first three measures, none of the means for the German fourth graders vary more than a half standard deviation from the U.S.A. fourth graders, three being in favor of the Germans and three in favor of the U.S.A. children. The seventh measure, verbal originality, falls six-tenths of a standard deviation below the U.S.A. mean.

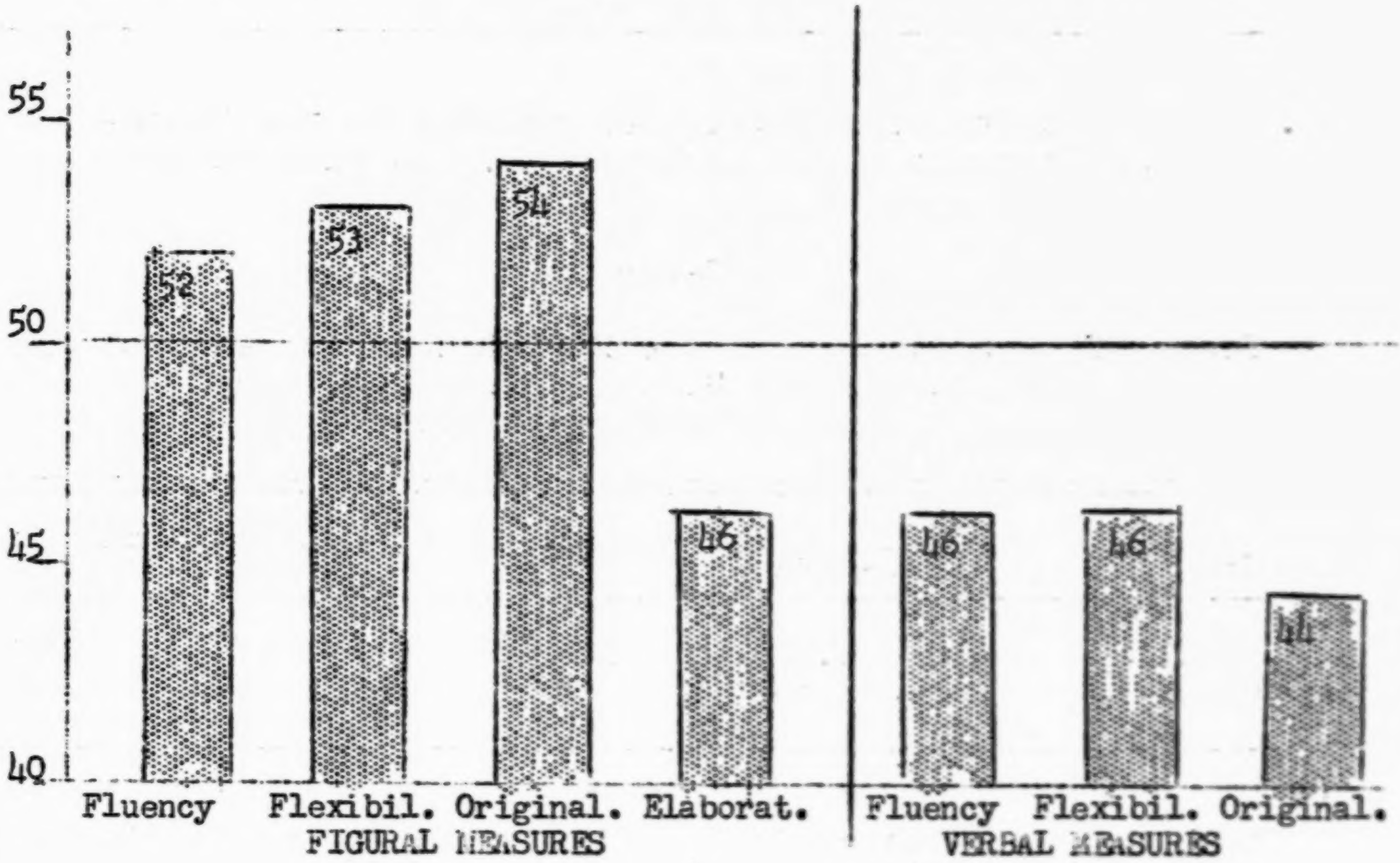

Figure 25. Mean Scores of Fourth Grade West German Pupils Converted to Standard Scores Based on U.S.A. Comparison Group Data

In summary, it might be said that the West Berlin children gave the U.S.A. children a better race than any other group studied.

Chapter 8

CREATIVE DEVELOPMENT IN NORWAY

Norwegian Culture

The major reason for choosing schools from the Norwegian culture was that the particular U.S.A. Comparison school under study is located in an area strongly influenced by Norwegian culture. Another consideration was that Norwegians are regarded as being highly cultured, very democratic, individualistic, and homogeneous. They have also made many notable contributions to world culture, such as the music of Grieg, the writing of Undset, and the like. Educational research in Norway (Sandven, 1963) has for a long time been concerned with the development of thinking among children.

The school system of Norway is headed by the University of Oslo and is highly organized. School attendance is compulsory for children from age seven to fourteen and illiteracy is practically nonexistent. The use of books and periodicals in Norway is one of the world's highest.

There are two official languages in Norway: NyNorsk or Landsmål and Riksmål or Bokmål. The latter is the language of Oslo, other cities, and most of the books and newspapers. Landsmål is the language of the mountain and fishing villages and some of the agricultural areas. Both are official languages and both are universally understood though not universally used. Each language is difficult for children who grow up with the other. There are vigorous proponents of both languages and this makes change to a single language difficult. All of the instruments used in this study were translated into both languages. The Bokmål translation was used in a school located near Oslo and the Landsmål translation was used in the school located in a rural area in the northern part of Norway.

Arrangements for obtaining permission to conduct the study were complex and long drawn out and undoubtedly would have been impossible had not my (at that time) colleague, Professor Gordon M.A. Mork, been located in the Institute for Educational Research at the University of Oslo. Professor Mork made the arrangements for the translations of the tests, supervised the administration of the tests in the school near Oslo, arranged for the testing in the rural area, and gave much helpful advice concerning the translation of the data. It was not possible to obtain some of the data collected in other countries such as the Ideal Pupil Checklist and the interviews with teachers. Our advisers in the Institute for Educational Research did not believe that this would be acceptable to Norwegian teachers.

In the absence of data from the Ideal Pupil Checklist and the interviews with the teachers, it has been necessary to draw comparative inferences about the culture from the occupational choice data, the imaginative stories about people and animals with divergent characteristics, an analysis of the folk literature and legends of Norway, and data from the report of Public Opinion Surveys discussed in the preceding chapter.

Occupational Choices and Aspirations of Norwegian Children

Occupational choices and aspirations were obtained from 171 of the boys and 135 of the girls who participated in the developmental study. Table 92 presents a summary of these choices along with the similar distribution of choices from the U.S.A. sample.

Table 92

Comparison of Most Popular Occupational Choices of Norwegian and U.S.A. Samples by Sex

	Norway		U.S.A.	
Occupation	Boys (N=171)	Girls (N=135)	Boys (N=2164)	Girls (N=2038)
Actor, actress, entertainer	0.0%	0.7%	0.4%	1.8%
Air hostess, steward, etc.	0.0	6.7	0.0	3.8
Artist, cartoonist, etc.	0.6	0.7	2.3	2.2
Athlete, professional	2.3	0.7	10.1	0.2
Barber, beautician	0.6	14.8	0.2	1.6
Construction trades	4.1	0.0	2.2	0.0
Engineer	3.5	0.0	6.3	0.0
Farmer, rancher, etc.	1.2	0.7	5.9	1.5
Housewife	0.0	3.0	0.0	7.4
Lawyer	0.6	0.0	3.6	0.6
Mechanic, electrician, etc.	12.2	0.0	2.8	0.1
Medical doctor	0.6	0.0	9.2	3.0

Table 92 (Continued)

Occupation	Norway Boys (N=171)	Norway Girls (N=135)	U.S.A. Boys (N=2164)	U.S.A. Girls (N=2038)
Military, soldier, sailor	4.6	0.0	6.1	0.0
Minister, priest, etc.	1.2	0.0	1.7	2.7
Musician, singer, etc.	0.0	0.0	0.7	1.6
Nurse	0.0	17.8	0.1	26.4
Operator, truck, bus, etc.	15.7	0.7	2.8	0.1
Pilot, astronaut	8.1	0.0	5.3	0.1
Police, detective, etc.	5.8	0.0	3.8	0.4
Scientist, chemist,etc.	0.6	0.0	8.2	2.6
Secretary, typist, etc.	0.0	13.3	0.0	6.9
Teacher	5.2	19.2	2.1	30.4
Undecided	10.4	10.4	10.3	6.3
Veterinarian	0.0	0.0	2.6	2.5
Other Occupations	9.3	10.4	46.7	25.3

Note: Some children expressed more than one choice.

In examining Table 92 one is struck by the lack of interest in creative occupations such as acting, music, art, and writing and in the sciences. Compared with the U.S.A. sample, the Norwegian children are more interested in such occupations as beautician, construction worker, mechanic, electrician, truck and bus driving, policework, clerk-typist, and secretary. Although teaching and nursing are popular among the girls, they are less popular than among U.S.A. girls. Beautician and occupations in the clerical and secretarial field come close to teaching and nursing in popularity. Teaching is more popular as a choice among Norwegian boys, however, than among U.S.A. boys.

One is also struck by the general restrictiveness of the occupational choices and aspirations given by the Norwegian children who participated in this study. Only 9.3 percent of the boys and 10.4 percent of the girls gave occupations outside of our list of most popular occupations.

Attitudes Concerning Divergency

Imaginative stories about animals and people with divergent characteristics were written by 95 fourth, fifth, and sixth grade children in the rural school that participated in the creative development study. The total enrollment of the school was approximately 200 and all except one of the fourth, fifth, and sixth grade pupils present at the time the data were collected produced an imaginative story during the 20-minute period provided for this purpose. The school is located about 200 miles from Oslo in a small mountain village with a population of approximately 300. The pupils of the school come from the surrounding rural area.

The stories were translated by Mrs. Wenche Haaland, a native of Norway who was educated there, and analyzed by Gerald J. Middents following the procedures outlined in Chapter 4.

Perception of Pressure against Divergency

A total of 67.4 percent of the Norwegian and 69.5 percent of the U.S.A. Comparison group stories gave evidence of perceptions of pressure against divergent behavior. The analysis of the sources of these pressures is summarized in Table 93. It will be noted that there is an amazing similarity between the two distributions shown in Table 93. Only two of the differences are

Table 93

Comparison of Sources of Pressure against Divergency in Imaginative Stories Written by Preadolescent Children in Norway and the U.S.A.

Source of Pressure	Norwegian N	Norwegian Percent	U.S.A. N	U.S.A. Percent
Education	0	0	0	0
Parents	2	3.1	7	5.0
Peers	6	9.4	5	3.6
Self	19	29.7	50	36.0
Other Specific Person	23	35.9	49	35.5
Society	13	20.3	40	28.9
Storyteller	8	12.5*	3	2.2
Superior or Authority	8	12.5*	3	2.2
Total	79		157	

Note: * $<.05$ level of significance

statistically significant at the .05 level: the storyteller himself and a superior or authority were the sources of pressure mentioned more frequently by the Norwegian children than by the U.S.A. children. No significant differences attributed to parents, peers, the divergent character, society, or specific persons were found.

Table 94 presents the analysis of the nature of the pressures perceived by the Norwegian and U.S.A. Comparison

Table 94

Comparison of Nature and Form of Pressure against Divergency in Imaginative Stories of Preadolescent Children from Norway and U.S.A.

	Norwegian		U.S.A.	
Nature and Form of Pressure	N	Percent	N	Percent
Psychological				
Advice, Persuasion	7	10.9	5	3.6
Criticism, Laughter, Ridicule	6	9.4	20	14.4
Internal Force	10	15.6*	40	28.8
Question Asked	16	25.0**	13	9.4
Surprise, Puzzlement, Curiosity	4	6.3	15	10.8
Power or Authority	2	3.1	1	0.7
Total Psychological	45	70.3	94	67.6
Psychological and/or Physical				
Accident	9	14.1*	4	2.9
Assistance, Reward	15	23.4**	5	3.6
Challenge	8	12.5**	1	0.7
Expression of Hostility	12	18.8	17	12.2
Isolation or Avoidance	6	9.4	11	7.9
Remedial, Therapeutic, Treatment	4	6.3**	49	35.3
Unclassified	5	7.8	4	2.2
Total Psy. and/or Physical	59	92.2**	87	62.6

Note: ** $<.01$ level of significance
* $<.05$ level of significance

groups. It will be noted that within the cluster of psychological pressures there was a reversal of emphasis in two categories. Internal force was reported by the Norwegian less frequently than by the U.S.A. children. These internal stresses included feelings of guilt, tension, and pleasant or unpleasant feelings. They more frequently reported the use of questions as a type of pressure. They also included proportionately more direct efforts to change the divergent character, such as advice, persuasion, questions, power, and authority. The U.S.A. children relied more frequently upon indirect methods such as laughter, ridicule, surprise, puzzlement, and curiosity. This would suggest that the Norwegian children reflected more direct feedback from the society in response to divergent behavior.

In the areas designated as psychological and/or physical, there was considerably more pressure perceived by the Norwegian than by the U.S.A. children. This was especially true of accidents, rewards, challenges, and the like. Remedial and therapeutic treatment were reported more frequently by the U.S.A. than by the Norwegian children (35.3 percent compared to 6.3 percent, significant at the .01 level of confidence).

Effects of Pressures against Divergency

Table 95 presents the comparative results concerning the effects of pressure against divergent behavior.

Table 95

Comparison of Effects of Pressure Against Divergency as Reflected in Imaginative Stories of Preadolescent Children in Norway and U.S.A.

Effect of Pressure	Norwegian N	Norwegian Percent	U.S.A. N	U.S.A. Percent
Conformity:				
Willing	10	15.3**	56	37.8
Unwilling	1	1.5	10	6.8
Conditional	10	15.3**	0	0
Positive Reaction	4	6.3**	0	0
Total Conformity	25	39.1	66	44.6

Table 95 (Continued)

Effect of Pressure	Norwegian N	Norwegian Percent	U.S.A. N	U.S.A. Percent
Resistance:				
Destruction and Death	3	4.7*	1	0.7
Willing	15	23.4	24	15.5
Unwilling	9	14.1	27	18.2
Negative Reaction	7	10.9	30	20.3
Total Resistance	34	53.1	82	54.7
No Reaction	5	7.8*	1	0.7

Note: ** $<.01$ level of significance
* $<.05$ level of significance

An analysis of the data contained in Table 95 indicates a more frequent occurrence of conditional conformity among the Norwegians than the U.S.A. children in which the character in the story modifies his behavior on certain conditions. Moreover, positive reactions or successful elimination of the divergent behavior were more frequently reported in the Norwegian stories.

Concern about the Causation of Divergency

The analysis of the imaginative stories in terms of the concern expressed about the cause of the divergency is reported in Table 96. The Norwegian children just as frequently as the U.S.A. children were concerned about the cause of the divergency. It was more frequently an exclusive preoccupation of the Norwegian stories, however.

Table 96

Comparison of Concern about Cause of Divergency in Imaginative Stories of Preadolescent Children in Norway and U.S.A.

Concern about Cause	Norwegian N	Norwegian Percent	U.S.A. N	U.S.A. Percent
No Concern	21	22.2	46	23.0
Rejects Possibility of Divergency	1	1.1	0	0
Concerned Exclusively about Causation	16	16.8**	1	0.5
Concerned about Cause but not Exclusively	57	60.0*	153	76.5
Total	95		200	

Note: ** $<.01$ level of significance
* $<.05$ level of significance

Consequences of Divergency

The analysis of the consequences of divergent behavior is reported in Table 97. Insofar as the consequences related to the subject himself, Norwegian children reported more positive effects (42.6 per cent) than their U.S.A. counterparts (30.0 percent) and fewer negative consequences (45.7 percent for the Norwegians and 63.5 percent for the U.S.A. children, difference significant at the .05 level).

When the implications for society are concerned, there were no statistically significant differences in the responses of the two groups. There were marked differences, however, when the consequences are evaluated by the children writing the stories, as they reveal "how they stand" on the matter. The Norwegian children less frequently considered the divergency as negative than their U.S.A. counterparts (16.8 percent for the Norwegians and 69.5 percent for the U.S.A. children).

Table 97

Comparison of Consequences of Divergency Reflected in Imaginative Stories Written by Preadolescent Children in Norway and U.S.A.

Consequences of Divergency	Norwegian N	Norwegian Percent	U.S.A. N	U.S.A. Percent
To Divergent Subject:				
Positive	40	42.6*	60	30.0
Negative	43	45.7*	127	63.5
Neutral	11	11.7	13	6.5
To Society:				
Positive	24	25.5	35	17.5
Negative	45	47.9	98	49.0
Neutral	25	26.6	67	33.5
To the Child:				
Positive	15	15.8	45	22.5
Negative	16	16.8**	139	69.5
Neutral	63	66.3**	16	8.0
No Awareness of Divergency	1	1.1	0	0

Note: ** $<.01$ level of significance
* $<.05$ level of significance

Norwegian Culture in Folk Tales and Legends

Many students of culture have maintained that the folk tales and legends of a country that persist reflect something enduring and pervasive in the culture of that country. It is reasonable to expect that the characteristics encouraged and discouraged through the stories and books read by or to children will influence their development. In the progress of the studies described in this report I initiated a project to analyze the children's books as well as the folk literature and legends of the cultures under study in order to determine how these materials deal with those characteristics associated with creative development and functioning. Among several projects in this area, Michael Pesci undertook such an analysis of the characteristics encouraged and discouraged in a sample of 40 rather traditional stories and legends. He used the Ideal Pupil Checklist as the basic framework of his analysis.

In Pesci's unpublished analysis, he scored a characteristic if it was dealt with directly or clearly implied in the story line or moral of the story. A characteristic was scored as encouraged if, in the context of the story:

(1) Those who professed the characteristic succeeded or gained their ends.

(2) The characteristic directly or indirectly aided the characters in the story.

(3) Presence of the characteristic was prominent in the story line.

(4) The moral or consequences of the story pointed to the desirability of the characteristic.

(5) Absence or rejection of the characteristic led to misfortune or disaster.

A characteristic was scored as discouraged if, in the context of the story:

(1) Those who possessed the characteristic failed to achieve their ends.

(2) Possession of the characteristic failed to achieve their ends.

(3) Rejection or absence of the characteristic was stressed in the moral or consequences of the story.

(4) Rejection or absence of the characteristic led to success and goal attainment.

(5) Absence of the characteristic was prominent in the story line.

The stories analyzed are found in most collections of Norwegian stories and tales for children and are as follows:

1. The Fox as Herdsboy.
2. The Storehouse Key in the Distaff.
3. The Bear and the Fox Go into Partnership.
4. The Bear and the Fox Make a Wager.
5. The Cock and the Fox.
6. Well Done, Ill Paid.
7. The Hare Who Had Been Married.
8. Slip Pine-Root, Grip Fox-Foot.
9. Old Father Bruin in the Wolf Pit.

10. The Woodpecker.
11. The Three Lemons.
12. The Hen Who Went to the Dourefjeld to Save the World.
13. The Priest and the Clerk.
14. Silly Men and Cunning Wives.
15. Goody Against the Stream.
16. How to Win a Prince.
17. The Town Mouse and the Field Mouse.
18. The Charcoal Burner.
19. Master Tobacco.
20. Reynard Wants to Taste More Flesh.
21. The Way of the World.
22. Death and the Doctor.
23. Pork and Honey.
24. The Hare and the Heiress.
25. The Shopboy and His Cheese.
26. The Haunted Mill.
27. The Greedy Cat.
28. The Honest Penny.
29. Osborn's Pipe.
30. Grumblegizzard.
31. Father Bruin in the Corner.
32. The Companion.
33. The Father in the Family.
34. Another Haunted Mill.
35. The Death of Chanticleer.
36. Reynard and the Chanticleer.
37. Slip, Root, Catch Reynard's Foot.
38. Peik.
39. The Pancake.
40. The Skipper and Old Nick.

The characteristics rated as most encouraged in ten or more of the stories were related to industry, competition, courage, determination, adventurousness and consideration of others. The characteristics rated as least frequently encouraged (in three or fewer stories) were: self-assertion, emotionality, independence, and criticism of others. Most frequently discouraged (in seven or more stories) were: self-assertive and selfish behaviors that take advantage of others (haughty and self-satisfied, greed and selfishness). Other fairly frequently discouraged behaviors were: domineering, cheating and telling falsehoods, critical of others, overconfidence, and self-sufficiency. Many of the characteristics most closely associated with creative development were rated as encouraged with moderate frequency: intuitive, willing to take risks, quick thinking, self-sufficient, independent in thinking, and striving for distant goals.

There is a self-consistency about these findings that gives added confidence to their validity. The extent to which these findings characterize the Norwegian culture as facilitating creative development is difficult to evaluate. It can be said that in this body of literature there is considerable encouragement of characteristics associated with creative functioning and creative achievement but that there is also much in it that discourages creative behavior. Unfortunately, we do not have similar analyses of the literature that characterize the other cultures investigated in this study.

Education of Ten-Year Olds in Norway

The Gallup and Hill (1960) study of the education of 10-year-old children in Norway compared with the education of 10-year olds in the United States, England, France, and West Germany is directly pertinent to the present investigation, since 10-year olds in Norway are typically in the fourth grade.

In Norway, the 10-year old child, according to the Gallup and Hill survey, attends school 228 days each year and is absent for illness five and for other reasons one-half day. His average school day is four hours and 36 minutes. He spends about 69 minutes each day with homework. Thus, he attends school about 50 more days per year, is absent fewer days, and devotes over twice as much time to homework as his counterpart in the U.S.A. His school day, however, is a little more than an hour shorter each day than is the U.S.A. child's.

The Norwegian 10-year old spends about 21 hours per week in physical exercise compared to 10 hours for the U.S.A. child. Only six percent of them reported no physical exercise during the preceding week compared with 15 percent of the U.S.A. children. The Norwegian 10-year old also takes many long walks and bicycle trips of more than four miles (50 percent compared with 15 percent in the U.S.A.).

Norwegian 10-year olds reported rather infrequently that their classmates give their teachers much trouble by their bad behavior (36 percent compared to 60 percent in the U.S.A.). Children of this age who misbehave in school are most likely to be punished by being kept after school.

In a test of general information the Norwegian 10-year olds scored 20 percent correct compared to 17 percent correct for the U.S.A. children. On a brief geography test, they scored 22 percent correct and the U.S.A. 10-year olds scored 23 percent correct. On the arithmetic test, they scored 45 percent correct and their U.S.A. counterparts scored 43 percent. Thus, we see that they were "neck to neck" on these brief achievement tests.

Forty-two percent of the Norwegian and 45 percent of the U.S.A. 10-year olds reported that they had read a book for pleasure during the past 24 hours. The Norwegian 10-year olds are the only group from the five countries that reported writing fewer compositions from January to May than the U.S.A. children, reporting three to the U.S.A. ten-year old's six. Seventy-eight percent of the Norwegian children reported that they have to memorize poems, speeches, etc. almost every week compared to 43 percent of those in the U.S.A.

The Norwegian 10-year olds rank close to the West Germans on lack of interest in higher education. Eight percent of them would like to go to college and ten percent expect to do so compared to 42 percent and 45 percent respectively in the U.S.A.

Twenty-five percent of the Norwegian 10-year olds expressed an interest in becoming a teacher compared to 34 percent in the United States. This percentage, however, is somewhat higher than that for the children in the two Norwegian schools participating in the present study.

In spite of their lack of interest in higher education, a larger percentage of Norwegian 10-year olds placed high grades above popularity (86 percent compared with 82 percent in the U.S.A. and 62 percent in West Germany).

Twenty-six percent of the Norwegian 10-year olds reported that they took special lessons outside of school, the same percentage as in the U.S.A. sample. They were more likely to take lessons in music than in anything else.

Eighty-one percent of the Norwegian 10-year olds were in classes which included both boys and girls compared with 96 percent in the U.S.A. About 92 percent of them get to school either by walking or bicycling compared with 57 percent in the U.S.A. arriving by such means.

Norwegian 10-year olds spend considerable time listening to the radio, but very few of them have access to television. Fifty-two percent of them had spent three-quarters of an hour a day listening to radio but only four percent of them had watched television this much (compared with 28 and 78 percent respectively for U.S.A. 10-year olds).

The Norwegian 10-year olds spend more time doing household chores than do the 10-year olds in any of the other four countries studied; 40 percent of them spend an hour or more a day in this way compared to 27 percent in the U.S.A. Fewer of them attended church, chapel or Sunday School the previous Sunday before the survey (only 25 percent compared to 68 percent in the U.S.A.).

Seventy-eight percent of the Norwegian 10-year olds compared with 17 percent of their U.S.A. counterparts reported that they stand up when their teacher comes into the room. When a teacher other than their own enters the room, 88 percent of them stand up compared to 23 percent in the U.S.A.

Norwegian 10-year olds reported a higher liking for school than did the 10-year olds in any of the other four countries surveyed. Forty-two percent of them reported that they liked school "very much" compared to thirty-six percent in the United States. Also somewhat fewer of them worry about examinations (49 percent in Norway compared to 55 percent in the U.S.A.). Only 29 percent of them thought that their parents worried about these examinations compared to 53 percent in the U.S.A. Forty-six percent of them expect to leave school by age 14 compared to one percent in the U.S.A.

Books are apparently rather common in the Norwegian home. Ninety percent of the Norwegian 10-year olds reported that there were 25 or more books in their homes, while only 74 percent of U.S.A. children reported that their homes contained this many books. Only 44 percent had telephones in their homes compared with 82 percent in the U.S.A. sample.

Again, we see much in the life of the Norwegian 10-year old that would be expected to encourage creative development and much that would discourage such development. On the whole, however, there appear to be more encouraging than discouraging things.

Performance on Tests of Creative Thinking

Performance on the Figural Tests

The same procedures were followed in Norway as were followed in the other countries in the administration, scoring, and analysis of the data from the three figural test tasks. The results of these analyses are presented in Tables 98, 99, and 100.

Table 98

Means and Standard Deviations by Grade of Norwegian and U.S.A. Comparison Groups on Figural Tests of Creativity

Sample and Grade	No.	Fluency		Flexibility		Originality		Elaboration	
		Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A. 1st.	72	13.80	4.12	11.07	3.14	11.78	8.31	45.92	17.92
Norway 1st.	33	13.22	4.29	10.19	3.48	11.44	6.08	26.00	14.40
U.S.A. 2nd.	123	17.33	5.27	12.99	3.16	14.75	7.75	56.94	17.72
Norway 2nd.	33	14.81	4.13	12.87	3.48	15.87	6.95	27.03	11.89
U.S.A. 3rd	131	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
Norway 3rd.	46	13.70	3.67	11.83	3.01	16.72	6.61	27.03	11.89
U.S.A. 4th.	72	15.83	4.22	12.63	3.22	13.04	6.97	46.82	15.23
Norway 4th.	61	14.77	5.19	11.79	3.95	14.56	8.29	32.84	18.49
U.S.A. 5th.	145	16.91	5.50	13.64	4.19	19.29	8.46	55.85	13.36
Norway 5th.	57	14.72	4.83	12.84	3.49	17.51	7.73	39.02	13.22
U.S.A. 6th	73	17.45	4.89	13.68	3.58	18.20	8.19	66.10	13.99
Norway 6th.	59	12.22	3.97	11.02	3.34	15.68	6.90	37.58	16.44

Table 99

Tests of Significance of the Differences in Means of Norwegian and U.S.A. Comparison Groups on Figural Tests of Creative Thinking

Grade	Fluency		Flexibility		Originality		Elaboration	
	t-Ratio	p	t-Ratio	p	t-Ratio	p	t-Ratio	p
1st.	0.66	NS	1.28	NS	0.21	NS	5.79	<.01
2nd.	2.57	<.01	0.19	NS	-0.81	NS	11.46	<.01
3rd.	5.57	<.01	1.59	NS	-1.64	NS	8.45	<.01
4th.	1.31	NS	1.35	NS	-1.15	NS	4.80	<.01
5th.	2.88	<.01	1.40	NS	1.52	NS	6.50	<.01
6th.	6.71	<.01	3.97	<.01	1.92	NS	9.20	<.01

Table 100

Tests of Linearity of Mean Profiles of Norwegian Sample on Figural Tests of Creative Thinking

Measure	Males F-Ratio	Males p	Females F-Ratio	Females p	Sexes Combined F-Ratio	Sexes Combined p
Fluency	0.58	NS	3.22	<.01	2.63	<.05
Flexibility	0.03	NS	4.21	<.01	2.94	<.05
Originality	0.90	NS	2.49	<.05	2.30	<.05
Elaboration	0.94	NS	0.62	NS	0.00	NS

It will be noted in Table 98 that there are slight drops in mean scores in the third and sixth grades. Since Norwegian children enter school at about age seven instead of age six as in the United States, this means that the third and sixth grade drops correspond rather closely with the rather common fourth and seventh grade drops in the United States.

From Tables 98 and 99 it will be noted that on most of the measures at most grade levels the two groups are very close to one another. At no grade level is there a statistically significant difference in originality; in three grades the slight difference is in favor of the Norwegians and in the other three it is in favor of the U.S.A. children. Only on elaboration are there consistent and statistically significant differences, all in favor of U.S.A. children.

The tests of linearity of the mean profiles as shown in Table 100 are especially interesting. Neither of the four mean profiles for boys departs significantly from a linear trend. Overall, however, the profiles for girls throws off the linear trend for fluency, flexibility, and originality but not for elaboration. The departures from linearity occur in the third and sixth grades primarily.

Performance on the Verbal Tests

The analyses of the scores derived from responses to the Ask Questions Test are reported in Tables 101 and 102. It will be seen from Table 101 that a peak is reached in the fourth grade on all three measures. There is a little recovery in the sixth grade but the level attained in the fourth grade is not regained.

Table 101

Means and Standard Deviations by Grade of Norwegian and U.S.A. Comparison Groups on Ask Questions Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 3rd.	79	9.22	4.75	6.58	3.01	10.54	7.51
Norway 3rd.	47	3.75	2.34	2.92	1.91	1.94	2.69
U.S.A. 4th.	72	4.51	2.55	3.81	1.66	3.96	3.35
Norway 4th.	69	6.30	3.23	4.93	2.23	6.41	5.64
U.S.A. 5th.	144	7.80	3.95	5.55	2.27	5.61	3.90
Norway 5th.	50	4.38	3.04	3.68	2.35	3.80	3.61
U.S.A. 6th.	73	7.16	3.11	5.75	2.50	5.51	3.89
Norway 6th.	48	4.56	3.18	3.81	2.38	4.54	4.50

Table 102

Tests of Significance of Differences in Means of Norwegian and U.S.A. Comparison Groups on Ask Questions Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	8.68	<.01	8.32	<.01	5.28	<.01
4th.	-3.65	<.01	-3.39	<.01	-2.94	<.01
5th.	6.33	<.01	4.68	<.01	0.43	NS
6th.	4.81	<.01	4.51	<.01	0.85	NS

The tests of significance of the differences in means in the fourth grade are all statistically significant at the .01 leavel of confidence in favor of the Norwegians. This is partly a function of the fact that the U.S.A. subjects slumped at the same grade level that the Norwegian children reached a peak. At all other grade levels, the U.S.A. subjects tended to outdistance their Norwegian counterparts but on only seven of the twelve measures did the U.S.A. subjects perform significantly better than the Norwegians.

The results of the analysis of the scores on the Ask Causes Test are shown in Tables 103 and 104.

Table 103

Means and Standard Deviations by Grade of Norwegian and U.S.A. Comparison Groups on Guess Causes Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 3rd.	79	4.03	4.36	3.01	1.58	4.62	3.72
Norway 3rd.	47	2.53	2.02	1.30	1.40	1.38	2.66
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
Norway 4th.	69	4.80	2.29	3.46	1.57	6.23	4.55
U.S.A. 5th.	144	5.08	4.14	3.19	1.92	4.69	4.47
Norway 5th.	50	3.70	2.29	2.74	1.43	4.16	3.32
U.S.A. 6th.	73	4.77	2.71	2.84	1.18	5.33	3.95
Norway 6th.	48	3.73	1.90	2.94	1.34	4.17	3.55

Table 104

Tests of Significance of Differences in Means of Norwegian and U.S.A. Comparison Groups on Guess Causes Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	2.63	<.01	6.58	<.01	5.68	<.01
4th.	-0.69	NS	1.25	NS	-3.34	<.01
5th.	3.29	<.01	1.61	NS	0.88	NS
6th.	2.54	<.01	-0.45	NS	1.68	NS

The picture here is very much the same as that just seen for Ask Questions. The peak occurs in the fourth grade but only in originality do the Norwegian fourth graders outdo the U.S.A. fourth graders at a statistically significant level. Only four of the twelve tests give a statistically significant advantage to the U.S.A. subjects over their Norwegian counterparts.

The results for the Guess Consequences Test are included in Tables 105 and 106. The picture becomes even sharper here than in the previous two tests.

Table 105

Means and Standard Deviations by Grade of Norwegian and U.S.A. Comparison Groups on Guess Consequences Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 3rd.	79	6.19	3.36	4.05	1.89	8.70	6.52
Norway 3rd.	47	3.53	2.50	2.38	1.64	2.32	3.02
U.S.A. 4th.	72	3.24	2.09	2.50	1.46	3.99	2.93
Norway 4th.	69	6.59	3.58	4.57	2.15	8.44	5.84
U.S.A. 5th.	144	6.04	4.12	3.58	2.20	5.75	4.98
Norway 5th.	50	4.90	2.45	3.42	1.63	4.90	3.63
U.S.A. 6th.	73	5.16	2.14	3.59	1.40	5.77	3.51
Norway 6th.	48	5.65	2.75	3.69	1.65	6.38	4.38

Table 106

Tests of Significance of Differences in Means of Norwegian and U.S.A. Comparison Groups on Guess Consequences Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	8.87	<.01	5.22	<.01	5.60	<.01
4th.	-6.70	<.01	-6.47	<.01	-6.10	<.01
5th.	2.33	<.05	0.57	NS	1.21	NS
6th.	1.07	NS	-0.39	NS	-0.91	NS

The spurt in the fourth grade is rather sharp; the drop between the fifth and sixth grades is also sharp; and the differences between the U.S.A. and Norwegian fourth graders are all statistically significant at a high level. Only in the third grade are the U.S.A. children clearly superior in performance to their Norwegian counterparts.

The results for the Product Improvement Test are presented in Tables 107 and 108. Although there are no results for the third grade as an anchor point, the peak again is in the fourth grade, but the differences between the Norwegian and U.S.A. fourth graders are not statistically significant. All of the differences in the fifth and sixth grades, however, are statistically significant at the .01 level and are all in favor of the U.S.A. subjects.

Table 107

Means and Standard Deviations by Grade on Product Improvement Test of Norwegian and U.S.A. Comparison Groups

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 4th.	72	7.62	4.18	3.75	1.62	6.49	5.63
Norway 4th.	69	7.06	3.69	4.23	2.30	6.51	5.35
U.S.A. 5th.	144	9.30	5.23	4.45	1.89	8.65	6.79
Norway 5th.	50	5.30	3.07	3.10	1.63	4.18	3.73
U.S.A. 6th.	73	10.76	4.98	5.25	1.76	9.11	5.76
Norway 6th.	48	5.56	2.50	3.63	1.41	4.19	3.14

Table 108

Tests of Significance of Differences in Means of Norwegian and U.S.A. Comparison Groups on Product Improvement Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
4th.	0.81	NS	-1.37	NS	-0.02	NS
5th.	6.45	<.01	4.22	<.01	6.30	<.01
6th.	7.54	<.01	5.79	<.01	6.07	<.01

The results for Unusual Uses presented in Tables 109 and 110 present a picture almost identical to that

Table 109

Means and Standard Deviations by Grade of Norwegian and U.S.A. Comparison Groups on Unusual Uses Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
Norway 4th.	69	3.94	2.53	2.64	1.34	3.25	3.54
U.S.A. 5th.	144	10.95	9.04	5.08	3.43	9.58	8.54
Norway 5th.	50	2.96	3.47	2.18	1.34	1.76	2.21
U.S.A. 6th.	73	11.34	6.10	4.82	2.30	7.11	6.05
Norway 6th.	48	3.33	1.96	2.38	1.11	2.19	3.31

Table 110

Tests of Significance of Differences in Means of Norwegian and U.S.A. Comparison Groups on Unusual Uses Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
4th.	1.30	NS	4.50	<.01	1.18	NS
5th.	8.88	<.01	8.28	<.01	10.03	<.01
6th.	10.40	<.01	7.87	<.01	5.79	<.01

seen for the Product Improvement Test. A minor difference is that the U.S.A. fourth graders outdid the Norwegians on flexibility at a statistically significant level.

The results for the Consequences Test are presented in Table 111. Since there are no data for the fourth grade, a trend analysis is not very important. The most important observation from these data is that there is not a drop between the fifth and sixth grades for the

Table 111

Means, Standard Deviations, and Tests of Significance of Differences in Means of Norwegian and U.S.A. Comparison Groups on Consequences Test

Sample and Grade	Fluency Mean	Fluency St. Dev.	Fluency t-Ratio	Fluency p	Originality Mean	Originality St. Dev.	Originality t-Ratio	Originality p
U.S.A. 5th.	7.37	3.40			4.51	3.35		
Norway 5th.	4.00	1.78	9.03	<.01	3.02	2.48	3.31	<.01
U.S.A. 6th.	8.04	3.66			5.51	4.12		
Norway 6th.	4.33	2.18	7.13	<.01	4.52	3.75	1.43	NS

Norwegians; neither was there much gain, certainly not a statistically significant one.

Tests of the linearity of the mean profiles of the Norwegian sample on the verbal measures are contained in Table 112. From these data, it is quite clear that the departures from linearity on all of the verbal measures are statistically significant. This seems to be due to the fact that there is a big spurt between the third and fourth grades followed by drops that are maintained at least through the sixth grade.

Table 112

Tests of Linearity of Mean Profiles of Norwegian Sample on Verbal Measures of Creative Thinking

Measure	Male F-Ratio	Male p	Female F-Ratio	Female p	Sexes Combined F-Ratio	Sexes Combined p
Fluency	12.26	<.01	6.55	<.01	17.56	<.01
Flexibility	16.61	<.01	10.67	<.01	26.34	<.01
Originality	13.57	<.01	12.76	<.01	24.84	<.01

Relative Levels of Creative Functioning

As has been done with the other cultures examined in this study, the analysis of relative levels of creative functioning on the various test measures was made at the fourth grade level. The results of the procedure of converting means to standard scores are shown in Figure 26. If the mean is computed for the seven indexes one of 50.1 is obtained, indicating overall equality between the two samples at the fourth-grade level. At no other level does the Norwegian sample enjoy such an advantage, however. The Norwegian children reached their peak in the fourth grade while the U.S.A. children experienced a definite drop. Much of the advantage of the Norwegians occurs in the verbal rather than in the figural area. In fact, the Norwegians perform disproportionately better on the verbal tests than the figural tests. They resemble the German children in this respect as opposed to the opposite tendency among the U.S.A. Negroes and Western Samoans. Because of the unusual tendency to elaboration among the U.S.A. Comparison group children, the index on that quality appears unusually low.

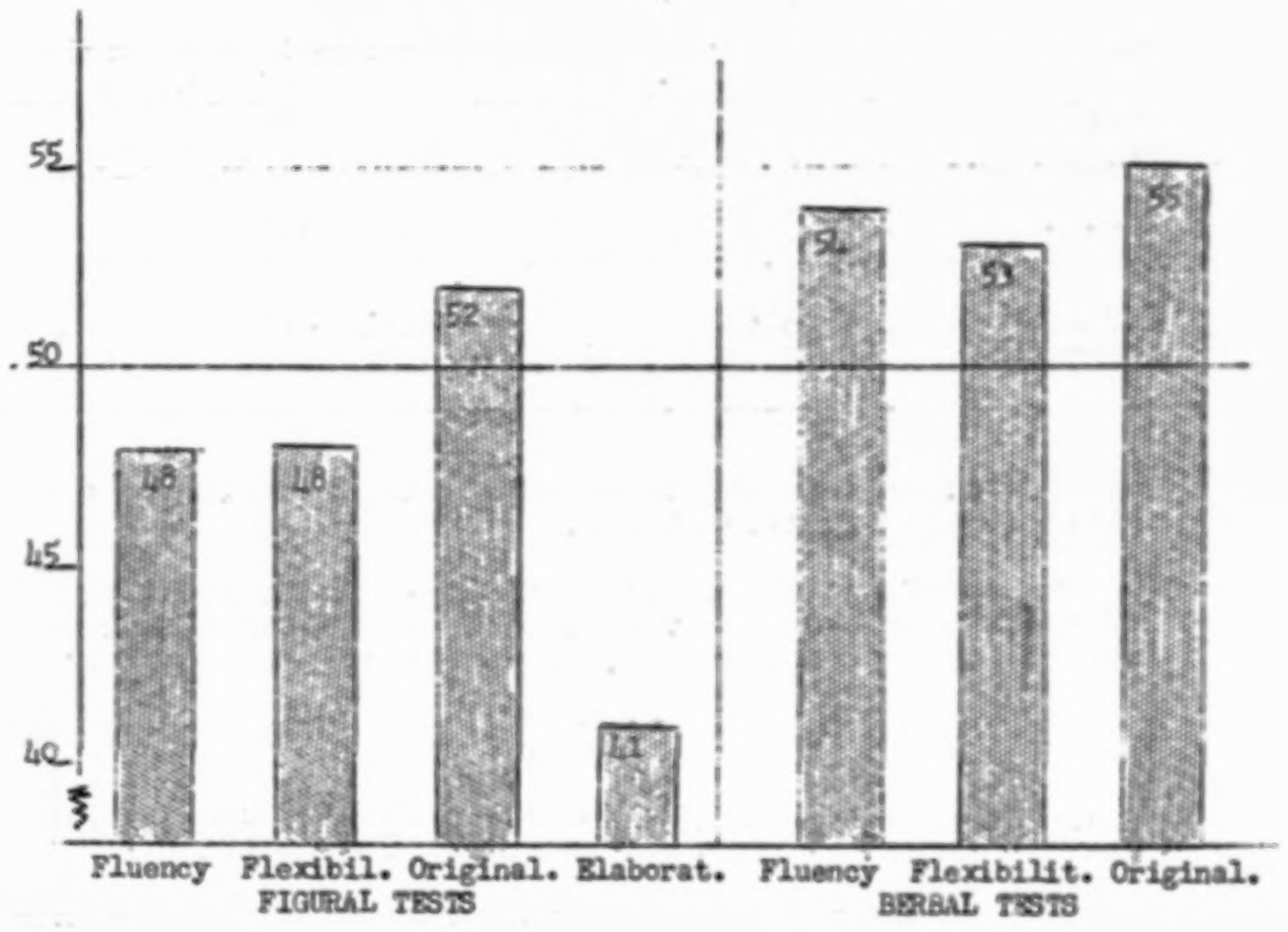

Figure 26. Mean Scores of Fourth Grade Norwegian Pupils Converted to Standard Scores Based on U.S.A. Comparison Group Fourth Grade Data

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Chapter 9

CREATIVE DEVELOPMENT IN INDIA

The Culture of India

Scholars in the field of comparative education (King, 1961) have found it almost impossible to paint a representative picture of the Indian school. Even in the more populous and progressive cities, they found great diversity among the schools. When we chose Delhi, India, as a center for the study of creative development, we were quite conscious of this problem. In fact, it was this very diversity that made Delhi attractive as a site for selecting schools for study. We felt that we might be able to identify in this heterogeneity something uniquely Indian and at the same time examine the effect of the different subcultural influences on creative development. The results of our efforts to accomplish such a task will be presented in a separate report. This chapter will follow rather closely the pattern of previous ones in this report.

Educators, psychologists, and sociologists who have studied the life and culture of India have generally concluded that creative functioning in India is rather low. Evidence of a lack of creative productivity is found in the poor record of Indian scientists, writers, and the like in various kinds of international recognitions of creative achievement. For example, Bloom (1958) has pointed out that between 1901 and 1955, there was only one Nobel Prize winner in the fields of physics, chemistry, physiology, and medicine. The number of awards going to scientists in other countries during this period was: Germany, 41; United States, 40; the United Kingdom, 32; France, 15; and Japan, 1. Evidence of a lack of creativity among students in Indian universities has been reported by psychologists and sociologists from both England and the United States (Bloom, 1958).

The author is indebted to Dr. Som Nath Ghei who arranged for the collection of the original data presented in this chapter and personally supervised their collection, doing much of the work himself; to Mrs. Gargi Luthra who prepared most of the cultural background materials, translated responses in Hindi and Urdu, and analyzed the imaginative stories; and to Mr. A. O. Prakash who studied some of the sex and subcultural differences.

Even Indian educators have frequently expressed an awareness of a low creative output among Indian scholars in science and other domains of knowledge. It seems to be their belief that educational, social and political conditions have suppressed the development of creative capacities among Indian children. For example, Saiyiadain (1963, p. 45) asserts that education in India has been given, until recently, a narrow utilitarian aim and naturally fails to challenge and evoke the higher powers, whether of artistic creation, intellect or personality. The capacity for intelligent thought, for initiative and ingenuity, for the expression of what is unique in the individual self is atrophied for want of development and use. Similarly the socio-political set up of our life has had an adverse reaction on it. The denial of political liberty from which India suffered so long had not merely a political significance, it had far-reaching repercussions on all aspects of national life and led to the drying up of the springs of creative energy. A nation that is not free to develop its life and institutions in the light of its own special genius cannot rise to its full intellectual and moral stature.

An attempt will be made to identify and review briefly some of the educational, social, and political influences that may be expected to influence creative development in India.

Family Influences

The original data reported in this chapter were obtained from Delhi, the capital of India which, like other large cities in India, is subject to many social, economic, and political forces. As a result of these forces, there has been much conflict and family patterns have been changing from a large joint family to a small group. Of significance is the beginning of a respect for individuality and initiative, totally lacking in the traditional values of four generations ago. However, the type of person who was then idealized is still spoken of with great favor, in spite of the fact that old ideals are undergoing change.

Dube's (1955) study indicates that the family still occupies by far the most important place in the social structure. It derives its significance not merely from its economic functions and its dominant rule as an agency of socialization and social control, but its natural importance is also great to an average Hindu. Muslims and Christians too share social attitudes with the Hindus; with the conversion to Islam and Christianity they have changed their religious faith, but in socio-cultural spheres of life they still continue to have more or less the same basic attitudes. In their family ethics and ideals they demonstrate considerable similarity.

Philosophy of Stages of Life

The social philosophy generally followed by an average Indian is basically one prescribed by classical Hinduism. According to this, life is divided into four stages: celibacy, family life, resignation and renunciation. The first stage is the formative period of one's life where a man acquires concentration by controlling his instincts and impulses and dedicates himself to the pursuit of learning and acquiring skills and knowledge. He equips himself thus for his social responsibilities for the second stage. The second stage is when he is married, has children, and shares his social responsibilities. This is the creative period and covers a very considerable part of man's life. The last two stages are contemplative when a man is expected to cultivate the attitude of detachment and to devote himself to reflection as preparation for the ultimate renunciation of worldly goods and worldly connections. We do not know how many people in India can explain the philosophy behind the conception of these stages of life, but its essence has come to them through tradition, through the teaching of the saint poets, the stories of epics and folklore, and it has ingrained itself in their thought pattern and value structure. People generally adhere to this pattern. Sex indulgence in the earlier period is socially disapproved. Marriage, however, is considered necessary. "Only morons and cripples remain single." It is rarely that people renounce their home and property in old age, but old men and women who exhibit excessive attachment to material goods come in for a great deal of criticism. People generally remark about them, "Will they carry their wealth with them when they die?" They turn their thoughts more towards religion and to the destiny of their souls.

Child-Rearing Practices

The family in India, according to Dube (1955, p. 134), comprises three different units each varying them from the others slightly. It may mean: (1) the elementary family or the house; (2) the extended family unit; or (3) a still larger group comprising the near kin in the paternal side. In cities like Delhi, family takes predominantly the first form. In many cases, the family consists only of husband and wife, their sons and unmarried daughters. In others, unmarried brothers and sisters of the husband may also belong to this unit. Each elementary family is independent of the extended family or the allied families, the members of which may be living in the city or other places away from the city; only on occasions like marriages or big calamities like death do the families get together to share the joy or the sorrow.

Within the family, the father is generally regarded as the head. His wife is given the second place. Traditionally woman has been accorded a high or equal place with man. She is talked of as "pure and noble" in the scriptures. Her status is described as being equal: "man and woman are the two wheels of the cart of life." The complementary nature of male and female was stressed in theory and practice in the "vadic" period. Since the days of "Vedas," Indian women have largely been subordinated and until recently women had few rights, little freedom, and scant personal identity. The ideal Hindu woman has come to be understood as supportive, a perfect "helpmate," having a self which has no meaning save in relationship to the family, and serving the family.

The social reformers in the early twentieth century, and later Gandhi, made a concerted move to get back to the spirit of the "Vedas." As a result, a woman today does enjoy freedom at least politically. Due to education, other social changes, and new challenges, the Indian woman is not satisfied with the role traditionally allotted to her, of being a happy wife and mother. The recipe for happiness is changing as "she wants to be an intellectual companion and not a slave" (Cormac, 1962). But women have to wage a very hard struggle to be accepted in the society and even now the traditional role of woman is encouraged. A girl is taught very early to accept the traditional role. The freedom she has is partial, tentative and is not quite approved by the community.

Indian Concept of the Ideal Child

Every member of the family is trained early in his or her role in relation to the other members of the family. Much stress is placed upon a pattern of respect and obedience to elders. The ideal child is best described by Mencher (1963) as follows:

> A good child, in the traditional context, may be described as humble; intelligent, although not

> necessarily brilliant; kind to small babies and animals; religious, in the sense of going to the temple once a day; non-interfering and well-behaved, in not being mischievous and avoiding quarrels with other children. He should above all be obedient and respectful to others (Mencher, 1963, pp. 54-65).

A child may not be expected to go to a temple every day in a city like Delhi but the other behaviors mentioned above are highly valued. Children learn the proverbs like, "The words of elders are "Amrit" (nectar); if you drink it you will not die. Therefore, you must listen to the elders, not question or talk back to them." The example of Rama who according to scriptures renounced his kingdom and went into exile and went through a lot of hardships in obedience to his father's wishes is always held before children.

"Traditionally every member of the family older than one was a potential sanctioning agent for him. Indeed, all or most action within the large family unit was directed from the older to younger, presenting a ladder of authority which resembles the one reported by Stoodley for Tagalog of Philippines" (Mencher, 1963, pp. 54-55).

Very little initiative is allowed a child to do things for himself. All of the infant's needs are gratified as soon as the mother becomes aware of them. During the first month an infant might be nursed every two hours or when it cries; crying from hunger reflects poorly on the mother. Toilet training is started early, mainly on the mother's becoming attuned to the child and anticipating his need to eliminate.

Shyness in children is considered natural. Parents usually relate with pride incidents of how their child became shy while playing "house" when he saw them. Self assertiveness in a child is spoken of as being too forward and bold. The fear of not being perfect is inculcated early. Children usually see their parents concerned lest others know of any mistake they might have made. Admitting a mistake is considered an affront to the dignity of an individual. The same behavior is exhibited in children. The fear of being caught in an error discourages creative work and taking responsibility for one's actions.

The display of aggression on the part of the child is condemned. Children are discouraged from quarreling. If a child is hurt in a fight, the natural parental reaction would be, "It serves you right for going out to fight." The only permitted outlet of aggressive feeling would be if expressed in relation to someone younger in age or lower in status such as a servant or some one from a lower caste.

Excessive display of feeling and emotions is not considered appropriate. There is a proverb that "Too much laughing will end in crying." An angry child is not tolerated. He is either scolded or spanked. The same is true when he is crying. He is either bribed with sweets to stop crying, or else scolded. In many cases a child does not let his feelings be known from fear of being teased or punished. Withdrawal and avoidance of conflict starts early as children try to avoid the angry parent. It is not important how a child feels but how he behaves.

The mother is mainly the disciplining agent as the father is away the whole day. She is responsible for the daily care of the children. She administers lighter punishments and deals with the minor faults and offenses of her children. All serious offenses and persistent defiance of the mother's authority are reported by her to the father. Very often the mother's threat that she would report the matter to the father is enough to set the recalcitrant children right. The image of the father as one who is feared is built gradually by the mother, in the minds of the children. In some families the father does assume a larger role of child care; he is generally viewed with fear, respect and distant admiration.

Preparation for a Changing Society

Cities of India such as Delhi are a queer mixture of old and new. The family is bombarded by many forces; new ideals of behavior suited to the maintenance of a new social climate are emerging. It is becoming easier for some parents to control a child's behavior by having values internalized by him. The parental form of emphasizing correct behavior is changed from "it is the way we do it" to "the correct thing to do is" in some families. The elders do not like the changes they see in the younger generation but they do not resist, in many cases. They have adopted the attitude of resignation. A typical observation of an orthodox elderly person about young people would be, "I give up on the present generation. They do not follow any observance. I am too near to death to want to be polluted by them, so I do not let them influence me."

Parents do recognize the new problems faced by young children, especially the conflict between earlier training and the new conditions which demand different roles. There is serious conflict between a sense of duty and newer concepts of individual rights. Child rearing practices are changing as parents are gradually becoming aware of tensions that these conflicts produce in the youth. Children who grow up in a comparatively free atmosphere are allowed a little more freedom to express themselves and be self-reliant. The tempo of change is rather slow because of the hold of traditionally approved social norms which an average Indian finds hard to disapprove or give up.

Another problem faced by Indian parents is that they are often too poor or ignorant to provide material and psychological conditions conducive to the proper growth of their children. The parents are preoccupied, more intensely than in most countries, with the ever-present and ever-involved problem of earning a livelihood. They have neither the leisure nor the resources of knowledge and of money to bring up their children properly.

Indian Education

Observation of educators in India and abroad are in general agreement that Indian graduate students are exceptionally well qualified in terms of knowledge or specific information, writing, etc. However, on problems involving original and independent thinking Indian students appear to be much less capable than their American peers (Bloom, 1958). Saiyiadain too seems to think that "the average Indian student is not inferior to the average student of any other country so far as his natural gifts and capacities both intellectual and practical are concerned. In some respects he may even be superior because of his rich cultural heritage ... in actual fact, we find that after a period of schooling--say at the age of fourteen--the Indian student has less energy, less resourcefulness, less initiative and a weaker consciousness of self and of community ties than his fellows in other countries" (1950, p. 5).

How do Indian schools manage to restrict and cramp the life of children in schools? In the first place the whole system of education forces them into a set pattern of uniformity. In most states, detailed curricula and the number of hours devoted to each, the text books to be used, and in some cases even the procedures for promoting students from one grade to another, are laid down and all schools have to follow these rules in order to become eligible for annual financial contributions from the state. The result is that "heads of schools and teachers have lost all incentive to experiment with new methods or try out new ideas." The whole system has been forced into a set pattern. This state of affairs is deepened by the party in power on the ground that uniformity is necessary at least in the period of planned development if the best results are to be achieved with the available resources.

The entire instructional program is directly related to the passing of a terminal examination at the end of these stages: elementary, high school and the college stage. These examinations require detailed memorization of particular subject matter and emphasize highly verbal skills for recording responses to essay questions (Bloom, 1958). The set syllabus furnishes guides for secondary and college instruction. The instructor rarely deviates from the prescribed syllabus as his major concern is the coverage of material in order to prepare students for the examination. Teaching is done largely through lecture methods of pouring out information to passive listeners. Understanding of ideas, solving problems and discussions which create genuine interest in a subject are discouraged in this set up. Students too respond to the instruction most directly related to the passing of examinations. Students devote their entire energies to cramming, memorizing the books recommended for the purpose of examinations as a means toward higher status (in the form of government jobs) and financial advantage.

The system of education is highly authoritarian. This is the reflection of the authoritarian temper of Indian society, where differences in opinion with an elder are often regarded as disrespect for him. Students have little scope for initiative and freedom in curricular or even co-curricular activities, and are greatly passive recipients of orders from above. Instead of being a democratic community,"the school is often a rigidly stratified society where authority at each level demands unquestioned obedience from below!" (Kabir, 1956, p. 157).

The Ideal Pupil as Judged by Delhi Teachers

On account of the various taboos in the schools studied, it was not possible to obtain interviews and ratings on the Ideal Pupil Checklist from all of the teachers whose classes participated in the creative development study. I believe, however, that the data provided by the 21 teachers who were interviewed provides a good enough set of ratings to determine whether or not the values held by the teachers of the children tested are similar to those attributed to the overall culture of India. It should also be pointed out that the ratings obtained from the 21 Delhi teachers correlate quite closely with two other sets of ratings obtained in India. A correlation of .86 was obtained between the rankings of this sample and a sample of 375 teachers in the Baroda, India, area. High concurrence was also found between the rankings of the Delhi teachers and professors in schools of education in the state of Rajasthan.

The comparative rankings of the Delhi teachers, the expert panel, and the U.S.A. teachers are presented in Table 113.

Table 113

Comparative Rankings of Ideal Pupil Characteristics of Delhi, India, Expert Panel, and U.S.A. Teachers

Characteristics	Expert Panel (N=10)	United States Teachers (N=1512)	Delhi Teachers (N=21)
Adventurous	11.5	19	22.5
Affectionate, loving	41	32	7.5
Altruistic, good of others	48	36	12.5
Always asking questions	13	38	36
Attempting difficult jobs	18	20	16
A self-starter	11.5	12	37
A good guesser	16	53	34
Bashful	60	56	51
Becomes preoccupied	8	41	49.5
Considerate of others	45	1	21
Critical of others	39	46	52
Courageous in convictions	1	22	7.5
Courteous	56	8	5
Curious	2.5	4	19
Competitive	44	34	32.5
Desires to excel	37	21	29
Determined	16	6	16
Domineering	51	61	53
Disturbs class organ. and procedures	36	60	61.5
Does work on time	56	13	7.5
Emotional	34	50	41
Emotionally sensitive	14	43	45.5
Energetic	20.5	14.5	16

Table 113 (Continued)

Characteristics	Expert Panel	United States Teachers	Delhi Teachers
Fault-finding	43	58	56
Haughty, self-satisfied	61	62	57.5
Healthy	46.5	7	7.5
Independent in judgment	4.5	16	30.5
Independent in thinking	2.5	2	26
Intuitive	6	30	35
Industrious	31	9	1.5
Likes to work alone	28	44	45.5
Never bored	25	40	26
Nonconforming	26	51	57.5
Negativistic	53	59	54
Obedient	58.5	25	3
Popular, well-liked by peers	49.5	28	22.5
Persistent	8	23	39.5
Prefers complex tasks	22.5	39	32.5
Physically strong	52.5	37	26
Quiet	52.5	48	38
Receptive to ideas of others	34	11	12.5
Regresses occasionally	28	49	47.5
Reserved	49.5	47	43.5
Remembers well	31	24	4
Self-confident	19	10	10
Self-assertive	28	42	49.5
Self-sufficient	20.5	31	30.5
Sense of humor	22.5	3	12.5
Sense of beauty	31	17	22.5
Sincere	25	5	1.5
Spirited in disagreement	34	45	47.5
Strives for distant goals	16	26	26
Stubborn	39	57	61.5
Sophisticated	42	54	54.5
Timid	58.5	55	59.5
Thorough	24	18	12.5
Talkative	46.5	52	59.5
Unwilling to accept say so	8	35	43.5
Visionary	10	27	42
Versatile, well-rounded	39	14.5	19
Willing to take risks	4.5	29	39.5
Willing to accept judgment of authorities	62	33	19

An examination of the data presented in Table 113 suggests that in general the Delhi teachers who responded to the Ideal Pupil Checklist reflect the cultural analysis presented in the preceding section. There is the great emphasis on obedience, remembering well, affection, industriousness, and sincerity. Compared with the teachers in most of the other cultures surveyed, these teachers give relatively low ratings to independence in thinking and judgment, being a self-starter, and willingness to take risks.

When the rankings of the Delhi teachers were correlated with those of the expert panel, a coefficient of .11 was obtained and one of .81 was obtained between the rankings of the Delhi and U.S.A. teachers. These findings indicate that there is little relationship between what the Delhi teachers consider an ideal pupil and what students of the creative personality regard as ideal for creative development. There is a moderate relationship, however, between the ideals of U.S.A. teachers and this group of Delhi teachers.

Occupational Choices of the Delhi Pupils

Occupational choices and aspirations were obtained from 282 boys and 247 girls participating in the creative development study in Delhi.

The choices of the Delhi and U.S.A. samples are compared in Table 114.

Table 114

Comparison of Most Popular Occupational Choices or Aspirations of Delhi, India, and U.S.A. Samples by Sex

	Delhi		U.S.A.	
Occupation	Boys (N=282)	Girls (N=247)	Boys (N=2164)	Girls (N=2038)
Actor, actress, entertainer	0.4%	1.2%	0.4%	1.8%
Air Hostess, steward, etc.	1.4	0.4	0.0	3.8
Artist, cartoonist, etc.	1.1	1.6	2.3	2.2
Athlete, professional	9.1	0.0	10.1	0.2
Barber, beautician	0.3	5.1	0.2	1.6
Construction trades	0.7	0.0	2.2	0.0
Engineer	3.3	0.0	6.8	0.0
Farmer, rancher, herder	0.3	0.0	5.9	1.5
Housewife	0.0	3.2	0.0	7.4
Lawyer	0.4	0.8	3.6	0.6

Table 114 (Continued)

Occupation	Delhi Boys (N=282)	Delhi Girls (N=247)	U.S.A. Boys (N=2164)	U.S.A. Girls (N=2038)
Mechanic, electrician, etc.	0.0%	0.0%	2.8%	0.1%
Medical doctor	19.3	27.6	9.2	3.0
Military, soldier, sailor	9.5	0.0	6.1	0.0
Minister, missionary, etc.	1.1	0.4	1.7	2.7
Musician, singer, etc.	0.0	0.0	0.7	1.6
Nurse	0.4	0.4	0.1	26.4
Operator, truck, bus, etc.	1.1	0.0	2.8	0.1
Pilot, astronaut, etc.	8.1	0.0	5.3	0.1
Police, detective,etc.	1.4	0.0	3.8	0.4
Scientist, chemist,etc.	1.8	0.4	8.2	2.6
Secretary, typist,etc.	0.0	0.0	0.0	6.9
Teacher	12.3	50.0	2.1	30.4
Undecided	6.7	3.6	10.3	6.3
Veterinarian	0.0	0.0	2.6	2.5
Other occupations	12.3	3.2	46.7	25.3

Note: Some subjects expressed more than one choice.

Among the boys, it will be noted that an unusually large proportion expressed interest in medicine, aviation, teaching, and military service compared with U.S.A. boys. Perhaps even more unusual is the relative absence of choices among the boys for such occupations as the construction trades, engineering, farming, law, mechanics, electricity, truck and bus driving, and police work.

The Delhi girls expressed an even greater interest than the U.S.A. girls in teaching. There is an almost complete lack of interest in nursing; less than one percent of these girls wanted to be nurses compared with 26.4 percent of the U.S.A. girls. A large percentage (27.6 percent), however, would like to be medical doctors. None of the girls expressed a desire to be a secretary, clerk, or typist. Very few of the boys or the girls expressed an interest in the sciences or the arts.

Indian Culture Reflected in Imaginative Stories

The fourth, fifth, and sixth grade pupils in the seven Delhi schools that participated in the creative growth study were asked to write imaginative stories either about "The Flying Monkey" or "The Lion Who Won't Roar," as in some of the other studies already described. A sample of 282 of these stories was translated and analyzed by Gargi Luthra (1966). Since Luthra's results have been reported elsewhere, they will only be summarized here. Her comparisons were with stories written on the same two topics by children in the U.S.A. comparison group school and others in the same geographical area quite similar to its.

The following is Luthra's summary of the results:

Perception of Pressure Against Divergency

> "There is a significant difference in the perception of pressure against divergency in the stories of the two groups. Contrary to the original assumption, the U.S.A. group shows more awareness of pressure against divergency than the Delhi group. The detailed analysis of the two topics, however, reveals that the two groups react differently to the two topics. On the topic of the flying monkey, more children from India than from the U.S.A. perceive pressure. Those of the U.S.A. group showing pressure, manifest a milder form of curiosity or surprise and then continue to describe how the flying power of the monkey will add to their fun. The Delhi children show disgust and fear at this power of the monkey as they anticipate further destruction. This group perceives the loss of roaring power in the lion as undesirable but see it as a punishment inflicted by the society for not being able to use this power for the benefit of society or not being an ideal king--sensitive to the needs of the society. They also tend to consider the lion without a roar as a meek and gentle animal who does not harm anybody and seemingly are pleased with the lion that has a roar but does not use it. The U.S.A. group, on the other hand, expresses a violent reaction against the idea of a lion without a roar, as it is like taking away a quality that makes a lion powerful and a king of the jungle. No wonder that a lion without a roar feels very unhappy and does everything possible to get back his roar.

Sources of Pressure against Divergency

"In the case of Delhi children, pressure emerges mostly from specific persons. The pressure exerted by society is in second place, but still fairly strong as compared with the U.S.A. children. This is probably an indication of changes taking place in Indian society and a modification of patterns of interaction between the individuals as the family changes from the large joint family to the nuclear family in the cities. The findings indicate, however, that the influence of society is still very strong. The U.S.A. group perceives pressure mostly from self and from specific persons and a little from the peer groups--contrary to the findings of previous studies. Neither group ascribed the pressures against divergency to education or to authority other than parents. The analysis of the stories indicates that the two groups perceive the sources of pressure differently for the two kinds of divergent behavior. Peers exercise greater influence on the monkey in the stories of Delhi children than those of the U.S.A. group. In the lion stories, the influence of peers is non-existent for this group. Inner compulsion of the individual exerts more pressure in most of the lion and monkey stories of the U.S.A. children. Specific persons in different roles exercise more pressure in the lion stories compared to the monkey stories in the Delhi group. This is a comparatively weaker source of pressure in the lion stories for the U.S.A. group.

Nature and Form of Pressure against Divergency

"In the five separate categories (power, internal force, challenging situation, hostility, and therapy), hostility and power are most frequently used by Delhi children while therapy, internal force, and challenging situation occur most commonly as pressures in the stories of the U.S.A. children. Both groups perceive psychophysical pressures considerably more than purely psychological ones. Regarding the two topics, the kinds of pressure exercised are different for the two groups. A considerable number of children in both groups exhibit more curiosity for the monkey who flies than for the lion who does not roar. But, in the case of Delhi children, curiosity is followed by digust and fear that a monkey will cause greater destruction, and for the U.S.A. children, on the other hand, curiosity is followed by the feeling of pleasure that they will derive when a monkey flies. Medical treatment is not suggested even by a single child in the U.S.A. group for the monkey while the majority of children suggest such services for the lion. Similarly, hostility, as a form of pressure, is indicated more for the monkey than for the lion in the stories of the Delhi children.

Effects or Consequences of Pressure against Divergency

"The comparative data indicate large overall differences between the two groups concerning the consequences of pressure against divergency. Contrary to the assumption that Delhi children perceive more conformity and less resistance to pressures, the group reacted to pressure against divergency with more resistance and less conformity. The U.S.A. children perceived more conformity and less resistance. The analysis of the two stories indicated, however, that it was due to the fact that the lion topic was chosen by the majority of the children from the U.S.A. The lion without a roar is perceived by this group as having lost it due to illness or a serious accident and an attempt is made to restore his roar through medical or psychological treatment. Naturally, the lions are made to conform more willingly.... Delhi children more frequently than U.S.A. children perceive the consequences of pressure against divergency as being fatal. More children from the Delhi group perceive no reaction to the pressures against divergency as compared to the U.S.A. children. Probably they see pressure as natural for them to accept without question.

Concern about Causes of Divergency

"There is a significant difference in the concern about the causes of divergency between the two populations. A majority of the U.S.A. children show a great concern for the causes of divergent behavior, while the Delhi group shows least concern for the causes of divergency. The detailed analysis of the distribution of responses of the two groups between the two stories shows that the U.S.A. group is more concerned about the causes which led to the loss of roaring power of the lion. A comparatively smaller percentage shows concern for the cause of flying power of the monkey. Delhi children, on the other hand, are more concerned with the effects of

> divergent behavior which is seen as disastrous for the monkeys that fly and a good punishment for the snobbish, mean behavior of the lion. Besides, not roaring would be an accepted behavior as it is seen as a passive behavior, commonly encouraged and desired in children.

Consequences of Divergency

> "The data show that Delhi children more frequently than U.S.A. children perceive positive values of the divergency to the divergent subjects. As the majority of the U.S.A. children wrote on the lion topic, they perceived the effect of divergency as fatal to the subject. Delhi children perceive positive and negative values of the divergency with almost equal frequency for the divergent subjects. The flying monkey may not be considered good by the society but the monkey derives pleasure and satisfies his hunger more efficiently. The lion that does not roar is good for the society but it is not. a very comforting feeling for the lion to have. The detailed analysis of the stories shows significant difference between the two groups regarding the effects of the divergency on the two topics. Both groups perceive divergency as negative for the lion. As expected, children from the U.S.A. more frequently than those in Delhi perceive divergency as positive for the monkey. Similarly, U.S.A. children more frequently than Delhi children mention divergency as negative to the lion."

The Seven Delhi Schools Studied

The seven Delhi schools that participated in the study were chosen deliberately in such a way as to represent as well as possible the different kinds of schools and the major distinct cultural groups of Delhi and to an extent, India. Arrangements for the testing were made and supervised by Dr. Som Nath Ghei who had assisted me in the initial development of the tests while he was a research assistant in the Bureau of Educational Research at the University of Minnesota. He recruited a group of five professionally qualified examiners to administer the individual tests and to assist in the group administration. Plates 5 and 6 in Appendix D show this team at work in both individual and group situations. In all cases, the children were encouraged to respond in whatever language they felt most comfortable. All seven of the schools gave primary instruction in English. Two of the schools gave instruction in Punjabi and one, Urdu. Hindi, Urdu, Punjabi, and English were used by the children in responding to the tests of creative thinking and in writing the stories. Gargi Luthra, an experienced teacher from India and skilled in English, Hindi, and Urdu, translated the Hindi and Urdu language materials and supervised the translation of the Punjabi materials.

The schools will be referred to by letter designations which may be attached to the following descriptive characteristics identified by Ghei and his associates:

School A (Muslim Girls School)

1. Situated in one of the oldest congested parts of Delhi.
2. Building an old big house.
3. Exclusively for girls.
4. Purdha strictly observed, no male allowed inside the school premises.
5. Children belong to mostly lower and middle class orthodox Muslim, Urdu speaking families.
6. Children in all the grades are generally older than children in other comparable schools.
7. Female staff.
8. Staff inadequately trained.
9. Medium of instruction Urdu language.
10. Facilities for extra-curricular activities limited.

School B (Catholic Mission School)

1. Situated in the newer and less congested part of Delhi.
2. Spacious, well designed school building.
3. Co-education in lower grades but the percentage of boys is very small (less than 5 percent).
4. No purdha.
5. Children belong to different religions and linguistic groups (from lower middle to upper upper class).
6. Children in all the grades are comparatively young in age.
7. Majority of staff female.
8. Staff well-trained.
9. Both Hindi and English are used as media of instruction to a more or less equal degree.
10. Facilities for extra-curricular activities above average.
11. One of the best schools for girls in Delhi.

School C (Sikh Girls School)

1. Situated in a relatively older and congested part of Delhi.
2. Grades I through V are situated in a part of Sikh religious temple--limited accommodation.
3. Exclusively for girls.
4. No purdha.
5. Children belong mostly to lower and middle class relatively orthodox Sikh families.
6. Children in all the grades are about average in age.
7. Female staff.
8. Staff poorly trained.
9. Medium of instruction Punjabi language.
10. Facilities for extra-curricular activities limited.

School D (Co-educational Muslim School)

1. Situated outside of the congested part of the city, rather cut off from the main city.
2. Spacious and well-designed school building.
3. Co-education.
4. No purdha.
5. Children come from lower to upper-upper class Muslim families, orthodox as well as liberal and of varied linguistic backgrounds.
6. Children in the first few grades are comparatively younger in age.
7. Staff predominantly male.
8. Staff well trained.
9. Medium of instruction Urdu language.
10. Facilities for extra-curricular activities above average.

School E (Public School)

1. Situated in one of the newly developing parts of Delhi.
2. New building though not very spacious.
3. Co-educational.
4. No purdha.
5. Children belong to middle and upper class families of varied religions and linguistic backgrounds.
6. Children in the first few grades are comparatively young in age.
7. Staff members about equally divided between the two sexes.
8. Staff well-trained.

9. Medium of instruction English.
10. Facilities for extra-curricular activities adequate though not above average.

School F (Sindhi School)

1. Situated in one of the new but congested parts of Delhi.
2. New building of ordinary style.
3. Co-educational but classes for boys and girls are held separately.
4. No purdha.
5. Children belong to lower middle and middle class Sindhi speaking families.
6. Children in lower grades are quite young in age.
7. Mixed staff.
8. Fairly well-trained.
9. Facilities for extra-curricular activities average.
10. Medium of instruction Sindhi.

School G (Mixed School)

1. Situated in a residential-cum-shopping area.
2. Building is old and old fashioned.
3. Co-education.
4. No purdha.
5. Children belong to mostly lower middle class Urdu speaking Muslim families, and Hindi, and Punjabi speaking Hindu families.
6. Children in lower grades are quite young in age.
7. Male staff.
8. Fairly well trained.
9. Facilities for extra-curricular activities limited.

For the purpose of studying the effects of cultural continuities and discontinuities, Ghei suggested the following three groupings of the above seven schools:

Group I, the traditional schools with a high degree of cultural continuity: Schools A, C, and F.

Group II, the national schools with a moderate degree of cultural continuity: Schools D and G.

Group III, progressive Christian schools: Schools B and E.

According to Ghei and his team of examiners and observers, the following characteristics were common among all seven of the schools:

1. Acceptance of authority rewarded.
2. Memorization through recitation encouraged at lower grades.
3. Seating arrangements enforced.
4. Homework given, neatness expected.
5. Mastery of limited stimuli encouraged at lower grades.
6. Class monitor appointed.
7. Inquisitiveness not consciously encouraged in lower grades.
8. Pressures on girls are greater than on boys.
9. "Doing nothing until told" attitude prevails in general.
10. Children, when young are pampered, as they start going to school they are much more exposed to rebuffs.
11. Teachers beyond the elementary stage generally better trained.
12. Children accepting of both parental and teachers' ideas and commands without questioning.

The following observations especially characterized the Group I, or traditional schools:

1. "Keep still," "Keep your mouth shut" philosophy enforced both at school and at home.
2. Crying not tolerated, in fact, greater physical punishment is likely to be meted out if the child keeps crying.
3. Learning of three R's emphasized.
4. No coeducation. (In School F, boys and girls sit in different class rooms; in the other two schools there are no boys.)
5. Emphasis on submission to God and religion greatly emphasized.
6. Extremes in dress highly discouraged.
7. Acting "grown-up" discouraged, especially in the case of girls.
8. There is considerable continuity and agreement between values at home and school in the case of Schools A and C.
9. In Schools A and C, children in grades 4, 5, and 6 go to another building.

A low level of creative functioning and continuity of development were predicted for children attending these three schools.

The pupils in this group of schools come from upper-lower and lower-middle classes. The schools are organized and operated by religiously oriented people with an emphasis on good will in the community. The schools are operated through community donations and grants-in-aid from the Department of Education of Delhi. The schools are poorly equipped and staffed.

Characteristics observed in the Group II or national schools were as follows:

1. "Keep your mouth shut" philosophy not enforced.
2. Learning the three R's emphasized to a much less extent than in the Group I schools. More non-academic and extra-curricular activities provided.
3. Religion taught in lower grades. Muslim values emphasized but secularism tolerated.
4. No school uniform prescribed but modesty in dress valued.
5. Co-education in all grades.
6. "Acting grown up" tolerated and encouraged in spheres other than "sin."
7. Personality of individual child respected. Modes of social address generally reserved for adults used to address children.
8. Medium of instruction is Urdu, the mother-tongue of the pupils.
9. Little discontinuity between values at home and social patterns at school. Conscious effort to develop potentialities.
10. Atmosphere of school (especially School D) is permissive compared with others.
11. Participation and mastery of a broad range of stimuli are encouraged.

The pupils of these schools are drawn from the middle class, and there is consciousness of the value of education as a basis of social status. The underlying philosophy of these schools might be called nationalistic. School D was founded by the former Vice President of India when Gandhi launched his non-cooperation movement and asked the country to boycott the British system of education. School G was founded in honor of the first education minister of the Delhi administration in independent India. The founder had a close association with the founder of School D, so the school commemorating him took the pattern of the nationalistic system of education.

The characteristics observed in the Group III schools were as follows:

1. "Keep your mouth shut" philosophy not enforced.
2. Learning of three R's less emphasized than in Group I schools; more non-academic activities provided.

3. Co-education up to sixth grade.
4. No religion courses taught.
5. School uniform is prescribed and proper dressing is emphasized.
6. "Acting grown up" tolerated and encouraged.
7. Medium of instruction, mother tongue, except in the case of Anglo-Indian and Indian Christian children.
8. Participation in a broad range of stimuli encouraged.
9. Considerable discontinuity between values at home and social patterns at school, especially in the case of non-Christian children.

The pupils of these schools come from the upper-middle classes. These schools are progressive Christian schools, using facilities that are absent in most Indian schools. The staffs of these schools are well trained and work continually with new ideas in an effort to improve the effectiveness of instruction.

Since the interview and questionnaire data are incomplete and since Ghei had made such appropriate observations concerning each school, it does not seem necessary to summarize the interview and questionnaire data. The above information, however, will be supplemented from the summary of the interviews.

In general, the children seemed to have had little experience with tests, according to some of the teachers. Some of the children had been given individual intelligence tests but at the time these data were collected, the "testing movement" had apparently not reached these schools.

The responses of the teachers concerning instruction in art appear to be quite revealing. In some classes, there is no instruction in art and where there is such instruction it is given by the regular classroom teacher. In only a few instances are the children permitted to choose the subjects of their drawings. The following are examples of the teaching techniques described:

> "I draw the lines by stages on the blackboard and tell them to do the same. Then the thing comes out into the real shape."

> "First I will draw the thing on the blackboard and tell them by stages how to draw it. Possible errors are corrected."

According to the teachers, the children enjoyed taking the tests of creative thinking. They expressed their approval and enjoyment by their anticipation, happy expressions on their faces, and by "their willingness towards the test." One teacher remarked that her pupils enjoyed the test because it was "something out of the ordinary."

The school year varies from eight to twelve months, averaging 9.3 months. Children are in school five or six days per week for five or six hours each day.

Grading and promotion policies were not very uniform. In general, however, promotion seems to be based on annual or semi-annual examinations. In the lower grades, there is a tendency for promotion to be based on mastery of reading, writing, and arithmetic.

In the interviews, teachers exhibited a great lack of awareness concerning the attitudes of the children about anything--working alone or together, their response to failure on examinations, etc. They also seemed to be unwilling to talk about their teaching methods. From their meager responses, however, one gathers the impression that Indian pupils are disciplined in a friendly manner and that some teachers are more formal in their approach than others. They seemed to be trying to understand their pupils and desired quietness and obedience from all pupils.

The teachers seemed to be more willing to talk about discipline and systems of rewards than any other topic. Teachers in the Group I schools said that they maintained discipline by praising the pupils and thus winning their compliance. Keeping pupils busy, shouting at them, and making the offender stand before the class in shame were also reported. Some of the teachers in these schools also said that they maintained discipline by love. Misbehavior is usually met with love and sympathy. The teachers in School A, however, seemed to use harsher methods of discipline. At times, pupils were made to stand with their arms raised, to sit with a finger placed on the mouth, and to execute extra writing projects.

There were no reports about the handling of discipline in the Group II schools. In the Group III schools, each teacher usually handled discipline problems but might make referrals to the headmaster in the more serious cases or where corporal punishment was warranted. Misbehavior usually occurred between classes outside of the classroom. Punishment was ordinarily mild, consisting mostly of assigning the wrongdoer additional tasks such as scrubbing desks, sharpening pencils and the like.

Performance on the Tests of Creative Thinking

The arrangements for the administration of the tests of creative thinking and their administration has already been described. One difficulty encountered in the administration of the tests was that it was necessary to provide only female examiners in some of the girls' schools and only male examiners in some of the boys' schools. The observation of the examiners was that the children usually seemed to enjoy taking the tests. Since Ghei had participated in the development of the test tasks and had worked with me and the rest of our initial team in their field testing, he was thoroughly familiar with the special problems of administering these specific tests.

Performance on the Figural Tests

The results were obtained by combining all three groups of schools and males and females, as in the other cultural groups. The results obtained on the three figural tests are summarized in Tables 115, 116, and 117.

In Table 115, year by year gains are observed on all four measures up to the sixth grade. At that point, a slump on all four measures is noted.

In Table 116, it will be observed that 23 of the 24 t-ratios are significant, all in favor of the U.S.A. Comparison group.

The tests for departures from linearity shown in Table 117 are all significant at the .01 level. The departure from linearity in this case is in the sixth grade. There are reasonably good gains between the third and fourth grades.

Performance on the Verbal Tests

The results obtained from the analysis of the responses to the Ask Questions Test are shown in Tables 118 and 119.

Table 115

Means and Standard Deviations by Grade of Indian and U.S.A. Comparison Groups on Figural Tests of Creativity

Sample and Grade	No.	Fluency		Flexibility		Originality		Elaboration	
		Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.	Mean	St.Dev.
U.S.A. 1st.	72	13.80	4.12	11.07	3.14	11.78	8.31	45.92	17.92
Indian 1st.	187	9.31	2.91	7.62	2.15	6.55	4.06	8.93	5.37
U.S.A. 2nd.	123	17.33	5.27	12.99	3.16	14.75	7.75	56.94	17.72
Indian 2nd.	140	10.32	2.98	8.46	2.55	8.84	5.20	12.58	7.97
U.S.A. 3rd.	131	17.21	5.25	12.69	3.19	14.72	7.42	49.12	17.60
Indian 3rd.	144	11.51	2.71	9.51	2.33	9.01	5.09	13.29	7.83
U.S.A. 4th.	72	15.83	4.22	12.63	3.22	13.04	6.97	46.82	15.23
Indian 4th.	174	13.51	3.90	10.83	2.77	9.52	6.15	15.20	8.03
U.S.A. 5th.	145	16.91	5.50	13.64	4.19	19.29	8.46	55.85	18.36
Indian 5th.	170	15.62	4.33	12.97	3.06	15.43	7.09	20.30	9.23
U.S.A. 6th.	73	17.45	4.89	13.68	3.58	18.20	8.19	66.10	18.99
Indian 6th.	173	12.56	3.19	10.91	2.12	9.53	5.27	15.56	7.84

Table 116

Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups on Figural Tests of Creative Thinking

Grade	Fluency		Flexibility		Originality		Elaboration	
	t-Ratio	p	t-Ratio	p	t-Ratio	p	t-Ratio	p
1st.	6.58	<.01	8.62	<.01	5.13	<.01	17.21	<.01
2nd.	12.98	<.01	12.58	<.01	7.21	<.01	25.64	<.01
3rd.	11.18	<.01	9.35	<.01	7.42	<.01	21.46	<.01
4th.	4.14	<.01	4.39	<.01	3.91	<.01	16.65	<.01
5th.	2.30	<.05	1.60	NS	4.34	<.01	21.16	<.01
6th.	7.89	<.01	6.16	<.01	8.34	<.01	21.97	<.01

Table 117

Tests of Linearity of Mean Profiles of Indian Sample on Figural Tests of Creative Thinking

Measure	Males F-Ratio	Males p	Females F-Ratio	Females p	Sexes Combined F-Ratio	Sexes Combined p
Fluency	25.30	<.01	13.13	<.01	14.27	<.01
Flexibility	32.89	<.01	6.83	<.01	33.48	<.01
Originality	29.81	<.01	10.52	<.01	33.34	<.01
Elaboration	8.83	<.01	8.91	<.01	14.79	<.01

Table 118

Means and Standard Deviations by Grade of Indian and U.S.A. Comparison Groups on Ask Questions Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 3rd.	79	9.22	4.75	6.58	3.01	10.54	7.51
Indian 3rd.	116	4.39	2.51	3.60	1.86	3.26	3.71
U.S.A. 4th.	72	4.51	2.55	3.81	1.66	3.96	3.35
Indian 4th.	115	5.94	2.13	4.61	1.68	3.89	3.43
U.S.A. 5th.	144	7.80	3.95	5.55	2.27	5.61	3.90
Indian 5th.	106	4.18	1.81	3.47	1.67	1.52	1.56
U.S.A. 6th.	73	7.16	3.11	5.75	2.50	5.51	3.89
Indian 6th.	92	7.41	4.25	5.05	2.01	4.46	4.92

Table 119

Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups on Ask Questions Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	8.33	<.01	7.84	<.01	8.00	<.01
4th.	3.97	<.01	3.33	<.01	0.14	NS
5th.	9.78	<.01	8.32	<.01	11.36	<.01
6th.	-0.14	NS	1.94	NS	1.54	NS

In these data the slump seems to occur in the fifth grade rather than in the fourth as in the U.S.A. or in the sixth as in the figural tests. In the sixth grade, however, there is a tendency for the Indian children to equal or surpass their U.S.A. counterparts. None of the differences in means in the sixth grade are statistically significant. All except one of the differences at other grade levels are statistically significant at the .01 level and in favor of the U.S.A. children.

The analyses of the results from the Guess Causes Test are presented in Tables 120 and 121. Reasonable

Table 120

Means and Standard Deviations by Grade of Indian and U.S.A. Comparison Groups on Guess Causes Test

Sample and Grade	No.	Fluency		Flexibility		Originality	
		Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
U.S.A. 3rd.	79	4.03	4.36	3.01	1.58	4.62	3.72
Indian 3rd.	116	2.91	1.52	2.66	1.31	1.97	1.97
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
Indian 4th.	115	3.40	1.60	3.10	1.24	2.35	2.14
U.S.A. 5th.	144	5.08	4.14	3.19	1.92	4.69	4.47
Indian 5th.	106	1.64	1.11	1.55	1.01	0.96	1.12
U.S.A. 6th.	73	4.77	2.71	2.84	1.18	5.33	3.95
Indian 6th.	92	3.41	2.00	2.73	1.42	2.74	2.41

Table 121

Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups on Guess Causes Test

Grade	Fluency		Flexibility		Originality	
	t-Ratio	p	t-Ratio	p	t-Ratio	p
3rd.	2.20	<.05	1.63	NS	5.80	<.01
4th.	3.32	<.01	3.13	<.01	3.64	<.01
5th.	9.52	<.01	8.74	<.01	9.62	<.01
6th.	3.59	<.01	0.53	NS	9.36	<.01

growth is shown between the third and fourth grades but there is a fairly severe drop between the fourth and fifth grades and the sixth grade achieved about the same level as the fourth grade. Ten of the twelve t-tests are significant at the .05 level or better.

The results for the Guess Consequences Test are presented in Tables 122 and 123. Essentially the same

Table 122

Means and Standard Deviations by Grade of Indian and U.S.A. Comparison Groups on Guess Consequences Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 3rd.	79	6.19	3.36	4.05	1.89	8.70	6.52
Indian 3rd.	116	2.63	1.30	2.22	1.01	2.21	1.88
U.S.A. 4th.	72	3.24	2.09	2.50	1.46	3.99	2.93
Indian 4th.	115	3.13	1.58	2.84	1.11	1.87	2.02
U.S.A. 5th.	144	6.04	4.12	3.58	2.20	5.75	4.98
Indian 5th.	106	1.98	1.62	1.73	1.34	1.48	1.66
U.S.A. 6th.	73	5.16	2.14	3.59	1.40	5.77	3.51
U.S.A. 6th.	92	4.08	2.88	3.08	1.57	3.95	3.94

Table 123

Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups on Guess Consequences Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
3rd.	8.97	<.01	7.89	<.01	8.61	<.01
4th.	0.39	NS	1.69	NS	5.39	<.01
5th.	10.76	<.01	8.23	<.01	9.48	<.01
6th.	2.73	<.01	2.17	<.05	7.32	<.01

phenomena are found here as were found in connection with the Guess Consquences Test. There is a drop between the fourth and fifth grades and ten of the twelve t-tests are statistically significant and in favor of the U.S.A. Comparison grou.

The comparison and developmental data related to the Product Improvement Test are displayed in Tables 124 and 125. On fluency and flexibility the fifth grade slump is repeated here. The level of performance on originality was so slow in the fourth grade, however, that it would have been difficult for the fifth grade to have performed more poorly.

Table 124

Means and Standard Deviations by Grade on Product Improvement Test of Indian and U.S.A. Comparison Groups

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 4th.	72	7.62	4.18	3.75	1.62	6.49	5.63
Indian 4th.	115	4.30	2.09	2.78	1.36	0.91	1.41
U.S.A. 5th.	144	9.30	5.23	4.45	1.89	8.65	6.79
Indian 5th.	106	3.76	2.03	2.52	1.36	1.51	2.02
U.S.A. 6th.	73	10.76	4.98	5.25	1.76	9.11	5.76
Indian 6th.	92	5.73	4.37	3.19	1.86	3.08	4.49

Table 125

Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
4th.	6.27	<.01	4.24	<.01	8.25	<.01
5th.	11.59	<.01	9.40	<.01	11.93	<.01
6th.	6.91	<.01	7.20	<.01	7.35	<.01

The results for the Unusual Uses Test are shown in Tables 126 and 127. Year by year gains are observed in the Indian data, but all of the Indian means on this task are quite low and are significantly lower than those of the U.S.A. students at the .01 level of confidence.

Table 126

Means and Standard Deviations by Grade of Indian and U.S.A. Comparison Groups on Unusual Uses Test

Sample and Grade	No.	Fluency Mean	Fluency St. Dev.	Flexibility Mean	Flexibility St. Dev.	Originality Mean	Originality St. Dev.
U.S.A. 4th.	72	4.51	2.54	3.81	1.66	3.96	3.35
Indian 4th.	115	1.74	1.71	1.44	0.85	0.39	1.19
U.S.A. 5th.	144	10.95	9.64	5.08	3.43	9.58	8.54
Indian 5th.	106	2.09	1.18	1.99	1.03	1.35	2.20
U.S.A. 6th.	73	11.34	6.10	4.82	2.30	7.11	6.05
Indian 6th.	92	3.03	2.16	2.53	1.45	2.27	2.91

Table 127

Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups on Unusual Uses Test

Grade	Fluency t-Ratio	Fluency p	Flexibility t-Ratio	Flexibility p	Originality t-Ratio	Originality p
4th.	8.17	$<.01$	11.25	$<.01$	8.71	$<.01$
5th.	11.63	$<.01$	10.20	$<.01$	11.08	$<.01$
6th.	11.10	$<.01$	7.42	$<.01$	6.28	$<.01$

The results of the analysis of the data for the Consequences Test are presented in Table 128. It will be noted that all of the means for the Indian children are significantly lower than those for the U.S.A. Comparison group at the .01 level.

Table 128

Means, Standard Deviations, and Tests of Significance of Differences in Means of Indian and U.S.A. Comparison Groups on Consequence Test

Sample	Fluency			Flexibility		
and Grade	Mean	St.Dev.	t-Ratio	Mean	St.Dev.	t-Ratio
U.S.A. 5th.	7.37	3.40		4.51	3.35	
Indian 5th.	2.68	1.72	14.27*	0.43	1.07	13.70*
U.S.A. 6th.	8.04	3.66		5.51	4.12	
Indian 6th.	4.30	2.66	7.33*	1.36	1.73	8.06*

Note: All differences in means are significant at the .01 level and in favor of U.S.A. group.

The tests for departures from linearity of the mean profiles of the Indian sample on the verbal tests are shown in Table 129. In all cases, the departures from linearity are statistically significant at the .01 level. The departures from linearity occurred primarily between the fourth and fifth grades.

Table 129

Tests of Linearity of the Mean Profiles of the Indian Comparison Group on the Verbal Tests of Creative Thinking

	Males		Females		Sexes Combined	
Measure	F-Ratio	p	F-Ratio	p	F-Ratio	p
Fluency	16.81	<.01	9.35	<.01	21.79	<.01
Flexibility	10.23	<.01	17.15	<.01	39.71	<.01
Originality	21.14	<.01	21.58	<.01	27.83	<.01

Comparative Level of Functioning on the Creative Thinking Measures

Figure 27 reveals the picture concerning comparative levels of functioning on the various measures of creative

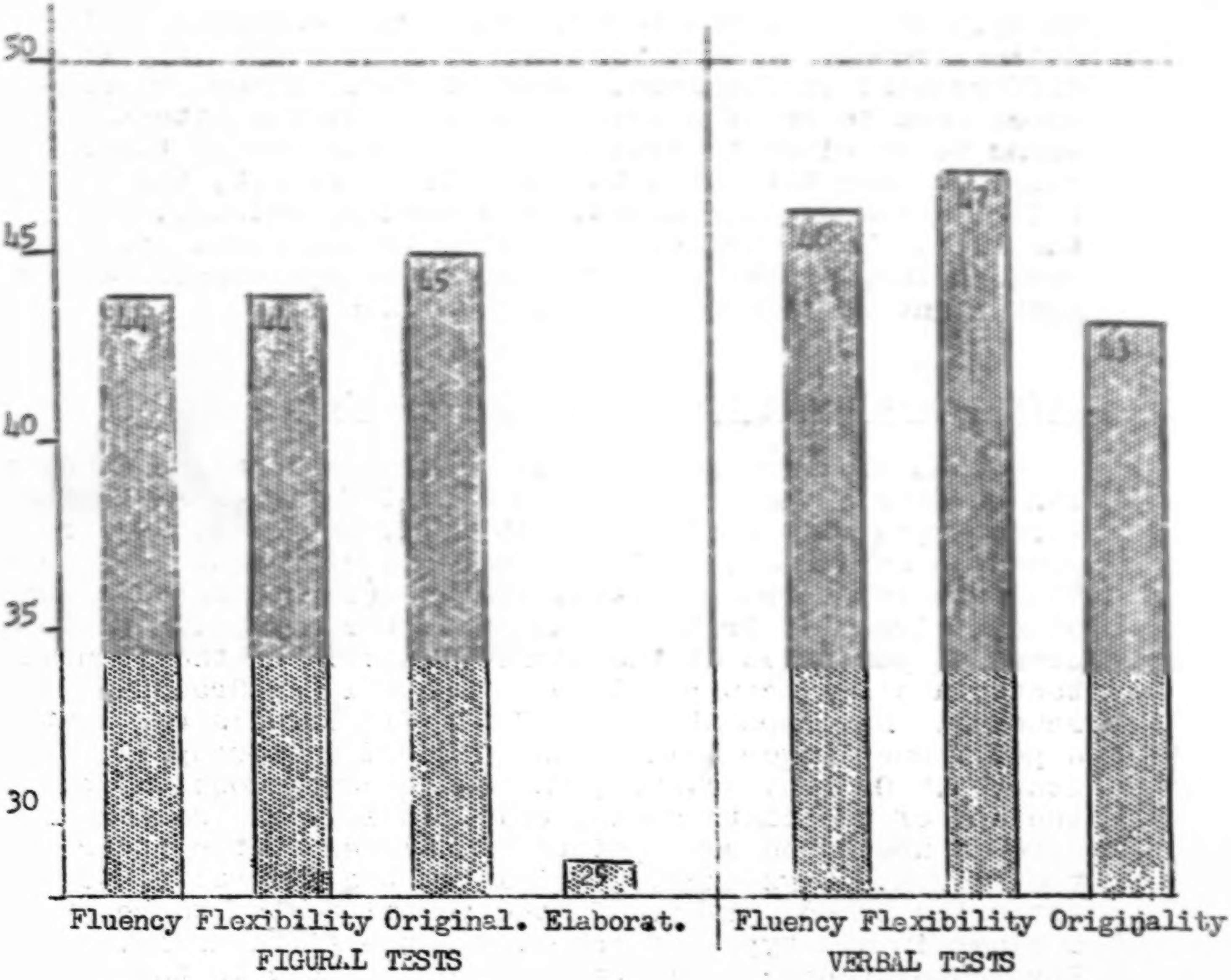


Figure 27. Comparative Level of Functioning on Figural and Verbal Tests of Fourth Grade Children in India in Standard Score Units Based on Data from Fourth Graders in U.S.A. Comparison School

thinking among the Indian fourth graders. As with the data from the other cultures, the raw score means were converted to standard scores using the U.S.A. fourth grade data as the basis for computing the standard scores.

As in all of the other groups with which the U.S.A. Comparison group has been pitted, the Indian children show up especially weak in ability to elaborate. When mean figural and mean verbal standard scores are computed, the Indian fourth graders appear to perform comparatively better on the verbal than on the figural tests. Their mean on the figural tests is 40.5 compared to 45.3 on the verbal tests. The great emphasis in the Indian schools on languages may be responsible for this differential performance. Most of their school experiences seem to be of a verbal nature. Little attention seems to be given to arts and crafts and few of these children were attracted to such fields as art, the building trades, mechanics, engineering, science, and the like. Thus, achievement along verbal lines seems to receive far greater encouragement than achievement along what might be regarded as figural lines.

Differences among Schools and Between Sexes

Subjects were selected so that more detailed studies can be made of sex differences and differences among the three types of schools: traditional, national, and progressive Christian. Using a somewhat different but basically similar scoring system, Prakash (1966) made one such study. Overall, Prakash found that the Group II (national schools) performed at the highest level. On the figural tests, a slump occurred in both Group I and Group II schools. Development in the Group III schools began at a point much lower than in the Group I and Group II schools. Growth, however, was quite continuous and by the end of the sixth grade, children in these schools were at about the same point as children in the other two groups. Boys excelled girls on the figural tests after the second grade. On the verbal tests, there was a slump in all types of schools in the fifth grade. Boys outdistanced girls rather consistently in the third, fourth, and fifth grades but slumped in the sixth grade and fell behind the girls. On the verbal measures the girls slumped rather severely in the fifth grade but showed a spurt in the sixth, whereas the development of the boys was continuous through the fifth grade and did not drop until the sixth grade. Prakash's study suggests that the subcultural differences within the Indian culture are sufficient to produce differences in creative development and that differential treatment of boys and girls produces differences in creative functioning and development. Studies thus far have been rather gross in their approach. With these gains, it should be possible to design studies that will yield more precise insights.

PART II

Chapter 10

DEVELOPMENT OF CONFORMITY BEHAVIOR

Conformity and Creative Thinking

Compulsive conformity has long been regarded as antithetical to creative thinking. For example, Emerson (1841), in his essay on "Self-Reliance," wrote, "The virtue in most regard is conformity. Self-reliance is its aversion. It loves not realities and creators." Crutchfield (1962) has pointed out that there are two key words in this comment by Emerson. One of these words is "self-reliance" and the other is "realities." Since conformity involves the loss of self-reliance, Crutchfield explains, it undermines a person's creative powers by weakening his trust in the validity of his own thought processes and imagination. Crutchfield also argues that conformity inhibits a person's ability to sense and grasp basic reality, and the loss of contact with reality is destructive of creativity. In brief, conformity tends to destroy creativity by alienating the creator both from reliance on his own thought processes and from contact with basic reality.

At the very outset, let it be said that what we are concerned about is a compulsive kind of conformity, or "overconformity," that robs a person of his freedom to make his own evaluations and choices. Starkweather (1967) has emphasized this concept in her development of conformity measures for use with young children. In her work, she has dealt with nonconformity as a motivational characteristic of the creative person. The creative person must be willing to be a nonconformist but is not a compulsive nonconformist. In her development of instruments she has attempted to develop procedures that will differentiate between the child who is a compulsive conformist or nonconformist and the child who is free to use either conforming or nonconforming behavior.

The central purpose of the experiments described in Part II is to explore the developmental aspects of the acquisition of conformity tendencies. Before going ahead with the reports of these experiments, I shall summarize briefly a few of the most pertinent earlier studies related to the development of conformity tendencies.

Survey of the Relevant Literature

Various aspects of conformity have been studied in relation to age. One such study was reported by Costanzeo and Shaw (1966). They tested the hypothesis that conformity increases until adolescence and decreases thereafter. In this study, there were 12 males and 12 females in each of four age groups: (1) 7-9 years, 11-13 years, 15-17 years, and 19-21 years. The subjects were placed in a booth facing a screen. The booth contained 40 rows of five lights each. The subject responded by turning on one of the lights in the fourth row. He believed that the first three rows of lights represented the responses of other subjects. The stimulus was a card containing a standard line and three comparison lines. The subject was asked to match one of the comparison lines to the standard line. There were five practice trials and 24 experimental trials, 16 of which were critical trials (the answers shown the subjects were incorrect). Conformity was measured by the number of erroneous responses in the 16 critical trials.

The results of this experiment did show, as Figure 28 indicates, that conformity increases with age during this range until adolescence is reached and then decreases. Girls proved to be more conforming than boys.

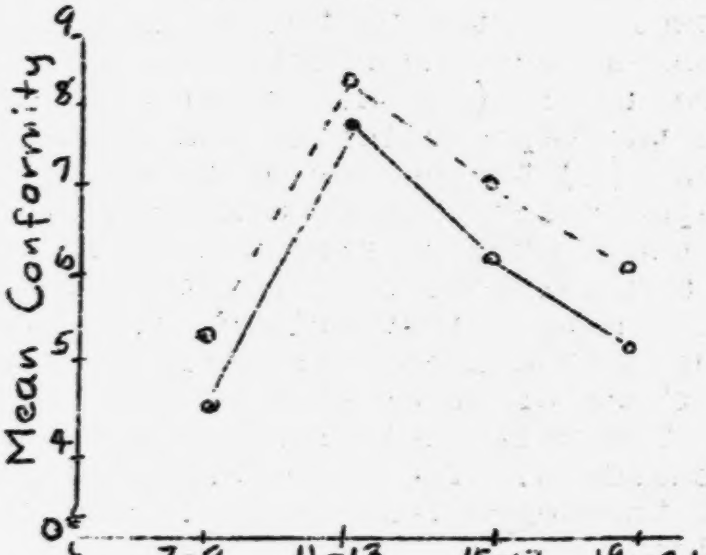


Figure 28. Mean Conformity as a Function of Age (Costanzeo and Shaw, 1966, p. 971)

Crandall, Orleans, Preston, and Rabson (1958) differentiated between peer-compliance and adult-compliance. Their subjects were 30 three-, four-, and five-year olds and 29 six-, seven-, and eight-year olds in a day camp. The peer-compliant nursery school children were different from their adult-compliant classmates. The peer-compliant children were more easy-going, less anxious, more suggestible, more attention-seeking, and less inhibited. The peer-compliant day camp children, however, were generally passive and non-assertive. The adult-compliant nursery school children were more like social conformists as usually pictured. They were anxious, showed deference toward superiors, and were extremely uncomfortable with aggressive behavior. Adult-compliant day campers were not nearly so passive and evidenced an active desire to please others.

Iscoe, Williams, and Harvey (1964) studied the effects of age, intelligence, and sex on conformity behavior in Negro and white children. The seven, nine, twelve, and fifteen-year-old groups were considered. Subjects were placed in booths and tested first in the Alone condition. They were asked to count the clicks of a metronome delivered via earphone, with twelve trials. In the Group condition, the subject first heard answers of what he thought to be the other three subjects in the room. On twelve of the 24 trials in this condition, the taped responses were incorrect. Two measures of conformity were used: (1) the number of times the subject agreed with the taped voice in the background incorrect condition and (2) the number of times the subject agreed with the taped voice in the background incorrect condition minus the number of errors made in the Alone condition. Age and sex were both related significantly to conformity. On the first criterion, conformity decreased with age but on the second criterion the results were similar to those of other studies and are shown in Figure 29. The white children were more conforming than the Negro children. The Negro and white males were similar but the Negro females conformed less than the white females.

With essentially the same experimental procedure as described above, Iscoe, Williams, and Harvey (1963) also studied the effects of varying the difficulty of the task. They found that errors were higher in the Group condition and on the more difficult tasks. The difficulty of the task increased the number of errors in the Alone condition but not in the Group condition.

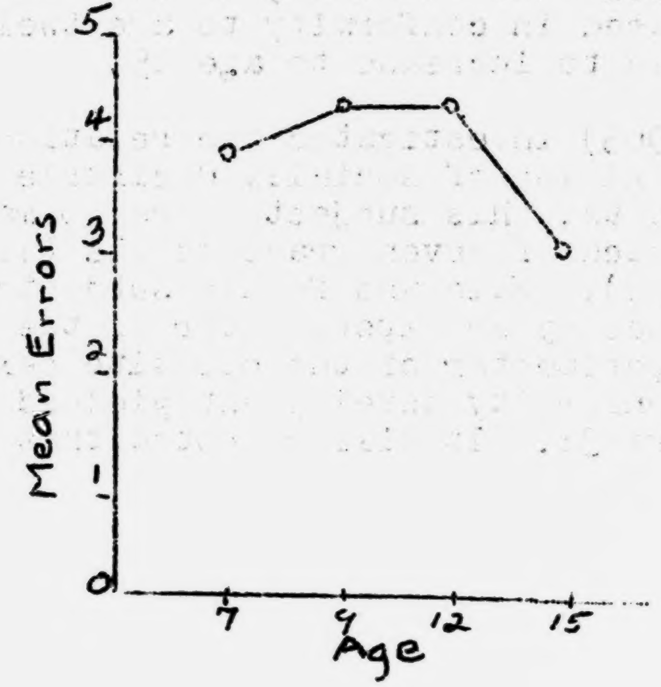


Figure 29. Relation of Age to Conformity on Criterion 2 (Iscoe, Williams, and Harvey, 1964, p. 456)

Figure 30 shows the mean increase in errors from the Alone to the Group condition by age and sex. Using the

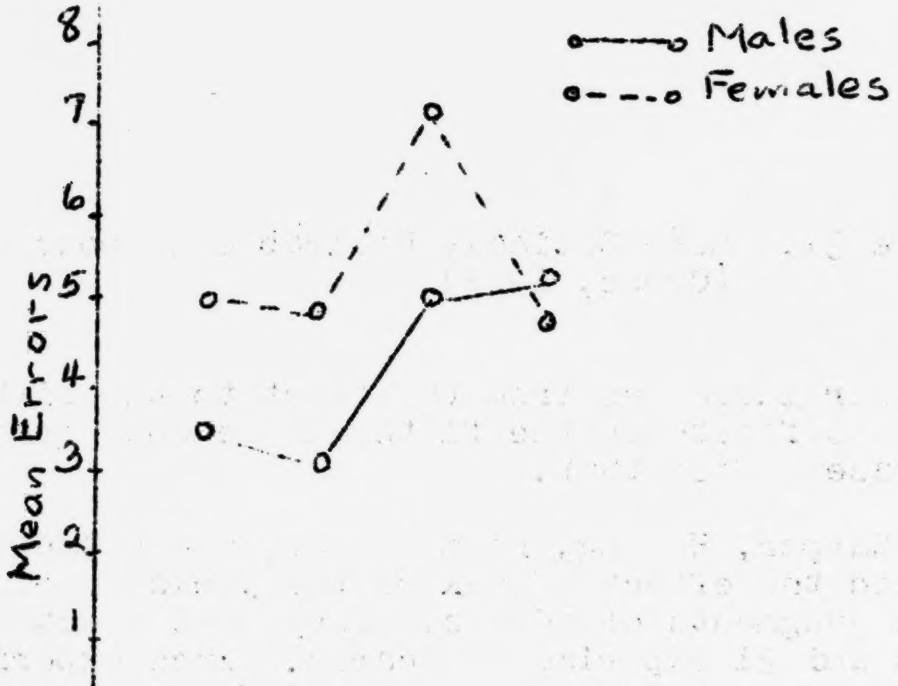


Figure 30. Mean Increase in Errors from Alone to Group Condition by Age and Sex of Subjects (Iscoe, Williams, and Harvey, 1963, p. 974)

conformity index thus obtained, it will be noted that females increased in conformity to age twelve, while males continued to increase to age 15.

Cruse (1963) investigated the relationship of grade level and the giving of socially desirable responses on personality tests. His subjects were 20 males and 20 females from each of seven grade levels (1, 3, 5, 7, 9, 11, and college). Male and female subjects were tested separately, once by an experimenter of the same sex and once by an experimenter of the opposite sex. This approach to conformity development yielded the results shown in Figure 31. It will be noted that conformity behavior increases from the first to the fifth grade, levels off between the fifth and seventh grades, and decreases after that.

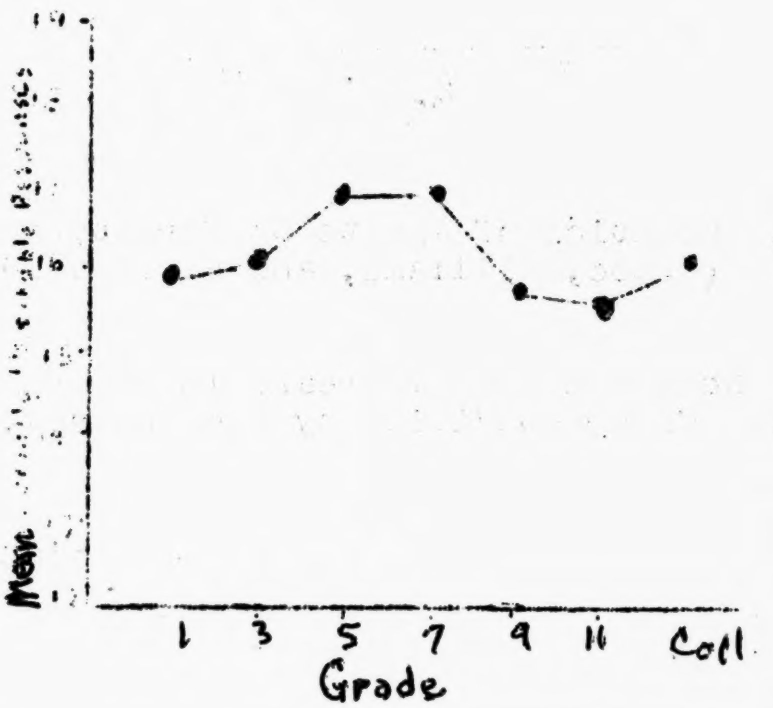


Figure 31. Mean Socially Desirable Responses by Grade (Cruse, 1963)

Harper, Hoving, Holm, Sasso, and Datanoski (1965) studied the effect of sex on the yielding of children to false judgments of adults. They used a set of practice cards and 21 experimental cards. Each experimental card contained seven representations of the same geometrical figure in varying sizes and the subjects were asked to match one of these to a standard drawn elsewhere. On seven of the trials, the adult gave an incorrect answer. One-half of the children had same sex examiners and judges and the others had opposite sex examiners and judges. Subjects were classified as Total Yielders, Compromisers, and Total Resisters. The sex of the adult had no significant effect on yielding. The sex difference fell just short of statistical significance.

Duncker (1938), in London, studied the development of conformity during the ages from two years and eight months to five years and two months through the experimental medium of food preferences. In the control situation, a child was simply asked to choose six foodstuffs in the order in which he preferred them. In the crucial situation, each child made his six choices in front of another child. This second child would then make his choices. Susceptibility to influence increased with age. Duncker remarked, "The scope of the babies' field of simultaneous awareness was not wide enough to permit this sort of social influence." Relative age was also found to be important as the subjects imitated older children more often than they did younger ones.

Berenda (1950) studied the effect of the judgment of an individual child when a majority of the group of which he is a member unanimously gives wrong judgments regarding simple perceptual materials. Thirty-eight subjects were aged seven to ten and 52 were aged 10 to 13. Berenda found that the younger children were more susceptible to group influence. In the younger group, 26 percent followed the group throughout and only seven percent were completely independent. In the older group, only 12 percent always followed the group and 22 percent never followed.

Berenda (1950) also conducted a similar study to determine the effect of wrong answers given by a teacher on the child's judgment. Eighty-three percent of the older children and 40 percent of the younger ones remained completely independent. The answers of the younger children became less accurate in the presence of the teacher while the older children performed with about the same degree of accuracy in both conditions.

No studies were identified that dealt specifically with any changes that might occur at about the fourth grade level. In fact, a number of studies involved third and fifth grade pupils but not fourth grade ones. The studies reported in this chapter concentrated on this stage of conformity development and more specifically upon the sources children use spontaneously to check their ideas.

Study 1

The purpose of Study 1 was to determine whether there is a change in the fourth grade in the persons to whom children go to compare and discuss their solutions to problems and whether or not they resist accepting an incorrect solution from an authority source.

Procedures

The experimenters in this study were members of the sixth grade high achievers class in the Bloomington, Minnesota, Public Schools. The conduct of the experiment and its reporting was the culminating activity in a course taught these children by the author on how to do educational research. The following instructions given to the experimenters set forth the details of the procedure. Both observations and the completed reports indicated that these young experimenters were very careful in the conduct of their experiments and all except one of the research teams carried off the experimental manipulation with relative success.

INSTRUCTIONS FOR EXPERIMENT

Arrangements have been made for the class to be divided into research teams of three or four members each. Each team will conduct an experiment in a specified classroom in the third, fourth and fifth grades and on Friday to present a research report according to the outline provided.

Thursday Morning at a time arranged by Mr. Buzzelli and your teacher:

The entire team will go to the room designated and one member of the team will introduce himself and the team, something like this:

"We are from ___________ class in the sixth grade. We are making a study of how good different grades are in solving a problem. We would like to ask you to help us by showing how well you can solve problems like this. Before we give you the problem, we shall pass out small cards for you to put your names on.

ENTIRE TEAM HELPS IN PASSING OUT CARDS.

"Now, will you write your name on the card and then listen carefully as I give you the problem. This is the problem:

> "You bought a horse for $60 and sold it for $70. You then decided that you wanted the horse back. You had to pay $80 for it this time but you sell it again for $90. How did you come out in all of this trading? Did you make or lose any money? How much did you gain or lose, if any?

"Now I shall repeat the problem, so listen carefully." REPEAT PROBLEM AS ABOVE.

"Now write your answer on the card." Allow a couple of minutes for them to write their answers on the cards. "Now my assistants and I would like to take up your cards. We thank you for helping us and we'll tell you the correct answer later and how many got it correct. We are going to give the same problem in some other classes, so we can't tell you the correct answer now." (LEAVE THE ROOM, thanking the teacher.)

Thursday, near the end of the session at a time designated by Mr. Buzzelli and your teacher:

Return to the same class and say something like the following:

"In a few minutes we'll give you the correct answer to the horse-trading problem, but first we'll give you a chance to correct your first solution, if you want to. We have a special sheet we'd like for you to put your answer on and answer a couple of other questions. PASS OUT SHEETS.

READ QUESTIONS ON SHEETS AS THE CLASS FILLS OUT THE BLANKS. WHEN THEY HAVE FINISHED, TAKE UP THE BLANKS AND GIVE THE CLASS THE CORRECT ANSWER.

Results

The major interest in this experiment was in the extent to which the subjects discussed their solutions with peers and adults. The Horse-trading Problem was first administered at the beginning of the morning and was re-administered just before the children left for home. Thus, there was considerable time for discussing the problems with peers and adults in the school (teachers, nurse, clerk, school psychologist, etc.). The results of the analysis are shown in Table 130.

Table 130

Frequency of Consultation by Grade Levels with Adults and Peers Following First Administration of Horse Trading Problem

Grade	Number	Consulted Adults		Consulted Peers	
		Number	Percent	Number	Percent
3rd.	76	27	35	16	21
4th.	93	13	14	45	48
5th.	81	13	16	54	67

It will be noted that there is a distinct drop between the extent to which the fourth graders consulted adults and a distinct increase in the extent to which they discussed the problem with peers (both statistically significant at the .01 level). The extent to which the fourth and fifth graders consulted adults was about the same, but there was more peer discussion among the fifth graders than among the fourth graders (significant at the .05 level of significance).

An analysis was also made of the extent to which the incorrect answer planted on the card left behind by the research team affected responses. For this purpose, $30 was selected as the incorrect answer to be planted because it has proved to be one of the less popular incorrect responses given by subjects of all ages. A subject was judged to have been influenced if he gave $30 as the correct answer at the time of the second administration of the problem and had not given this response when the problem was first administered. The results of this analysis are shown in Table 131.

Table 131

Frequency of Acceptance by Grade Level of an Incorrect Response from an Authority Source in Horse Trading Problem

Grade	Number	Accepted Incorrect Response	
		Number	Percent
3rd.	76	32	42
4th.	93	17	20
5th.	81	34	41

It will be noted in Table 131 that the fourth graders were more resistant than the third and fifth to the acceptance of the planted incorrect solution. In both cases, the difference in proportion is significant at about the .01 level.

From these results, it appears that a distinct change occurs at about the third grade in the sources children use in checking their solutions. There is a decrease in reliance upon adults and an increase in dependence upon peers. Added to this, is increased resistance to accepting incorrect solutions from authority sources.

Study 2

After conducting Study 1, some of my associates expressed reluctance in accepting the results because the experimenters were children. They thought that I might obtain different results, if I conducted the experiment myself. They also suggested that it would be valuable to obtain data from second and sixth grade children. Study 2 was designed to make use of these suggestions.

Procedure

The procedure used in Study 2 was essentially the same as that used in Study 1, with the following exceptions:

1. The author served as the experimenter in all cases.
2. The children in this school almost all ate lunch in their homes. Thus, an opportunity to discuss the problem with parents, siblings, and others in the home occurred in this study that was not present in Study 1.
3. In an attempt to modify the problem to make it easier for the second and third grade children, I changed the horse to a sled and the purchasing prices to \$6, \$7, \$8, and \$9 instead of \$60, \$70, \$80, and \$90.

This problem turned out to be too difficult for the second grade and was administered to only one class.

Results

The data in Table 132 summarizes the extent to which the subjects discussed their solutions with peers and adults or refrained from discussing them with anyone. The results here are quite similar to those obtained in Study I, but the shift away from checking with adults does not seem to occur until the fifth grade. There is a distinct shift at the fourth-grade level to consult with peers, however. The difference in proportions in the third and fourth grades are significant at the .01 level. Overall, the fourth graders tend to be more communicative than do the third graders. Only 25 percent of them consulted no one compared with 45 percent in the third grade. This difference is significant at the .05 level of confidence.

Table 132

Frequency of Consultation by Grade Level with Adults and Peers and Failure to Discuss Following First Administration of Sled Trading Problem

Grade	No.	Consult.Adults		Consult.Peers		Consult.No One	
		No.	Percent	No.	Percent	No.	Percent
2nd.	25	15	60	5	20	7	28
3rd.	53	25	47	12	23	24	45
4th.	40	18	40	25	63	10	25
5th.	44	6	14	23	52	18	42
6th.	44	5	11	33	75	8	18

A special analysis was made of the extent to which the subjects in this study discussed the problem with their parents. These results are shown in Table 133. Although there is a progressive decline from the second to the sixth grade in the extent to which children discussed the problem with their parents, the drop between the third and fourth is not statistically significant. The drop between the second and fourth is significant at the .05 level and the one between the second and sixth is significant at better than the .01 level.

Table 133

Consultation with Parents by Grade Level Following First Administration of Sled Trading Problem

Grade	Number	Consulting Parents Number	Consulting Parents Percent
2nd.	25	12	48
3rd.	53	15	31
4th.	40	10	25
5th.	44	7	14
6th.	44	5	11

Again, it seems that with educational advancement in the elementary grades there is an increase in the extent to which children check their solutions with peers and a decrease in the extent to which they check with adults.

Study 3

The possibility was suggested that the phenomena found in Studies 1 and 2 might be characteristic only of the Twin Cities culture. Thus, the design followed in Study 1 was repeated by Mrs. Natalie Yeager in Jacksonville, Illinois.

Procedure

Mrs. Yeager followed very much the same procedure that I used in teaching gifted children how to do research (Torrance and Myers, 1962). The procedure for conducting the experiment was the same as that described in Study 1.

Results

The results obtained in a Jacksonville, Illinois, elementary school are reported in Table 134. It will be noted that the results are unusually similar to those obtained in Study 1. The increase in proportion between the third and fourth grade on discussion with classmates is significant at the .05 level and the decrease in communication with adults falls short of statistical significance.

Table 134

Sources of Consultation by Grade Following First Administration of Horse Trading Problem in an Illinois School

		Classmate		Peer Other Cl.		Adults		No One	
Grade	No.	No.	Percent	No.	Percent	No.	Percent	No.	Percent
3rd.	41	11	27	4	10	13	31	24	59
4th.	45	22	49	10	22	7	16	17	38
5th.	53	35	67	16	30	14	26	6	11

The differences in the extent to which there is failure to discuss the problem with anyone should be noted. The fourth graders are more communicative than the third graders and less communicative than the fifth graders. Both differences in proportions are statistically significant at the .01 level of confidence.

Study 4

It was suggested by some of my associates that children might discuss a problem or puzzle solution with adults more frequently, if the problem were a visual one rather than a verbal one that might be distorted by memory. Thus, the Square and Triangle Problem shown in Figure 32 was substituted for the Horse Trading Problem used in the first three studies.

Procedure

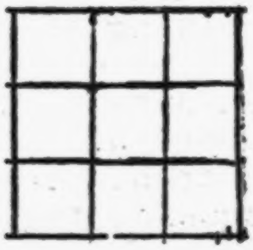
The gifted and high achieving sixth graders in my class on educational research were the experimenters. There was every evidence that the experimenters carefully carried out the following instructions:

> Step 1. Organize your team. One member should be designated to give instructions to the class assigned your team. Two teams will test third grade classes; two, fourth grade classes; and two, fifth grade classes. Other members should be designated to pass out slips and questionnaires, display the squares, etc.

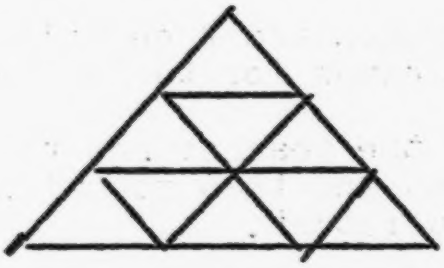
FIGURE IT OUT

Name____________________________Grade________Condition:______

Look carefully at the two geometric shapes. Before answering the questions which follow each figure, look at the figure closely.



How many squares can you find in this figure? ________
How many rectangles can you find? ________



How many triangles can you find in the figure above?_____

Figure 32. Test Sheet Used in Square and Triangle Problem

Step 2. Be sure that you have all of the materials that you need. For the first part of the experiment to be conducted Thursday afternoon, you will need a slip of paper for each pupil in the class and the chart showing the squares. For the second part of the experiment you will need a pink questionnaire for each pupil in the class and the same chart. This part of the experiment will be conducted early Friday morning.

Step 3. At a time arranged with your teacher and the teacher of the class to which you are assigned, your team will enter the classroom. One person will give the following instructions after passing out the blank sheets of paper:

> "My name is __________ and I am from Miss _________'s sixth grade class. We are conducting a study to find out how good boys and girls in different grades are in solving a certain type of problem.
>
> "Before I give you the problem, will you write your name at the top of the slip of paper you have been given? (Pause to give time for the writing of names.)
>
> "Now listen carefully to the problem. One of my team members will hold up a chart showing a number of squares. Your problem is to figure out how many squares there are on the chart.
>
> "Now go ahead and figure out the number of squares shown on the chart and write your answer in large figures on your slip of paper."

Give five minutes and then collect all papers, thanking the class for their cooperation.

Secretly ask the teacher not to discuss the problem with the class and that you will return the next morning for a retest.

Step 4. Friday morning at a time arranged by your teacher and the teacher of your assigned class, return and readminister the problem. Again, display the chart. Have each pupil in the class fill out the pink questionnaire.

As soon as the questionnaires have been completed, collect them and return to your classroom. In our class Friday afternoon we shall discuss the analysis of the data and each team will prepare a report according to the outline you have been given.

Results

Reports of the subjects concerning the persons with whom they discussed the Square and Triangle Problems are summarized in Table 135.

The increase in checking with peers and decrease in checking with adults between the third and fourth grades is significant at the .01 level of confidence. The tendency to consult peers seems to increase even more in the fifth grade but there was not an accompanying decrease in the tendency to consult adults.

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Table 135

Frequency of Consultation with Adults and Peers by Grade Level Following First Administration of Square and Triangle Problems

Grade	Number	Consulted Adults		Consulted Peers	
		Number	Percent	Number	Percent
3rd.	174	87	50	41	24
4th.	166	41	25	78	47
5th.	180	60	33	124	69

The results using the Triangle and Squares Problems are essentially the same as those produced with the Horse-Trading Problem. The fourth grade seems to be marked by a developmental tendency to check solutions to problems more frequently with peers and less frequently with adults than at earlier stages.

Study 5

Although the Horse Trading and the Squares and Triangle Problems prove to be reasonably difficult at all age and educational levels, they appear to be rather easy. Actually, only about 30 percent of the graduate students and other adult groups to whom I had administered these problems solve them correctly. Above the third grade level, success occurs with about the same frequency as among graduate students and other adults. It was thus suggested that a more difficult problem would produce results different from those obtained in the first four studies. It was predicted that a more difficult problem would result in more discussion with adults and less discussion with peers among fourth grade children. Thus, the 3x3 Square Problem was replaced by a 4x4 Square Problem. The problem was to count the number of squares shown in Figure 33.

Procedure

The procedure was the same as in Study 4. All evidence indicates that the experimental procedures were carefully executed.

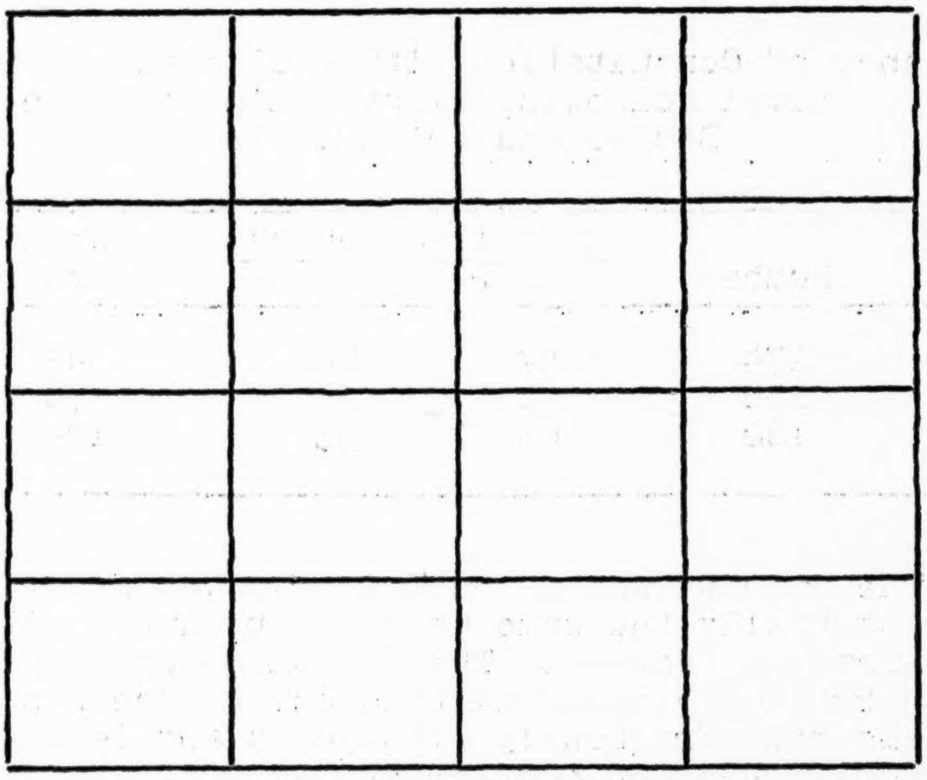

Figure 33. How Many Squares Can You Find?

Results

The reports of the subjects following the 4x4 Square Problem concerning their outside discussions of the problem are summarized in Table 136.

Table 136

Frequency of Consultation by Grade Levels with Adults and Peers Following First Administration of 4x4 Square Problem with Home Contacts Intervening

Grade	No. S's	Classmates		School Adults		Commun. Adults		No One	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent
3rd.	175	33	19	20	11	42	24	78	45
4th.	208	71	34	39	19	42	20	72	35
5th.	131	107	74	38	29	56	43	36	28

The trends for increased checking with classmates and decreased checking with teachers and with adults in the home and community between the third and fourth grades is not quite as sharp as in some of the other studies. The trends are the same, however, and the differences in proportions are significant at the .05 level of confidence, except for checking with community and home adults. There was slightly less checking with classmates by both the third and fourth graders than in most of the other studies.

In summary of the foregoing five studies it may be said that the fourth grade is marked by a general increase in communication in discussing the solution of problems with others. The increase, however, is due to a rise in the tendency to discuss problems with peers and is generally accompanied by a decreased tendency to discuss problems with parents, teachers, and other adults at home and at school. Since there is a tendency to check everything with peers as though to obtain consensual validation, this is likely to reduce originality of expression and generally decrease the output of ideas, questions, and the like.

Study 6*

In Study 2 an effort was made to adapt the test materials in such a way as to include younger children, but we were unable to go below the second grade in any of the first five studies. The opportunity to study the development of conformity tendencies in younger children arose in connection with a project associated with The University of Georgia Research and Development Center in Educational Stimulation. We thought that one of the reasons why investigators in the past have not been very successful in showing sex differences in conformity tendencies and in mapping development at these early stages might be in the nature of the measuring instruments used. It seemed to us that an impersonal test of conformity tendencies such as the one developed by Starkweather (1967) might be more appropriate for use with preschool children. This study represents an attempt to examine conformity tendencies and sex differences in them among three-, four-, and five-year olds.

Procedures

The subjects of the study were 38 three-year-olds, 58 four-year-olds, and 101 five-year-olds, all of whom had experienced almost one year of educational stimulation in projects under the sponsorship of the University of Georgia Research and Development Center in Educational Stimulation.

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* I am indebted to Larry E. Orcutt for the preparation of the report on Study 6.

The instrument used was Starkweather's Form-Board Test. The test consists of four puzzle-like form boards each with five holes or blank spaces to be filled with choices to be made for each. This gives the child 20 choice situations for each form of the test. The child has a choice of inserting one of two pieces into each empty space. The four boards consist respectively of a tree associated with related objects, a house and yard, a playground situation, and a barnyard with assorted objects and animals. Four inserts, one for each form of the test, can be placed into each board so that drawings appear in the openings, each drawing matching one of the two choice pieces for that opening. If a child chooses the piece which corresponds to the underlying stimulus, his choice is marked as conforming; if it is different, the choice is scored as nonconforming.

For each testing session a subject can score from minus 20 (most nonconforming) to plus 20 (most conforming). To eliminate negative scores in the analysis, a constant of 20 was added to each child's total score.

Form A was administered to all children in this study.

Results

The results of the analysis of the data are presented in Tables 137 and 138. Table 137 gives the means and variances of the three age groups when the sexes at

Table 137

Comparison of Conformity Scores of Three, Four, and Five Year Olds on Starkweather Form Board

Age	Number	Mean	S^2
3	38	25.08	97.96
4	58	26.72	43.33
5	101	25.35	93.27

Note: One-way analysis of variance yields F-Ratio of 0.667, not statistically significant.

each level are combined. A one-way analysis of variance of these results produced an F-ratio of 0.667 which indicates that there were no statistically significant differences among the three age groups.

Table 138 gives the sex breakdown for the three age levels.

Table 138

Comparison of Males and Females at Three Different Age Levels on Conformity Scores

Age and Sex	Number	Mean	St.Dev.	t-Ratio	p
3-Yr. Males	19	25.65	5.40		
3-Yr. Females	19	24.44	4.79	0.73	NS
4-Yr. Males	27	27.25	5.36		
4-Yr. Females	31	26.11	7.60	0.66	NS
5-Yr. Males	50	23.40	9.98		
5-Yr. Females	51	27.25	8.72	2.36	$<.01$

It will be noted that there are no significant differences between the mean performances of girls and boys at the three- and four-year-old levels, but the five-year-old girls were significantly more conforming than the five-year-old boys.

Discussion

While the results of this study are not conclusive and the testing needs to be moved up to six- and seven-year olds, the findings help to fill gaps in our studies of the development of conformity tendencies.

The finding of no difference between the groups of three-, four-, and five-year olds indicates that age by itself may not be a factor affecting the extent to which children exhibit conforming behavior in this impersonal task. On the other hand, the finding that towards the end of the first year of preschool experience, the sexes perform differentially at the older, five-year age level indicates that age, perhaps in combination with factors associated with sex roles, may possibly contribute significantly to conforming behavior.

Chapter 11

LONGITUDINAL STUDIES OF CREATIVE DEVELOPMENT

Need for Longitudinal Studies

All of the studies of creative development described in the preceding chapters have been cross-sectional rather than longitudinal in nature. This has been true of all of the quantitative, empirical studies of creative development of which I am aware. Such cross-sectional studies leave unanswered many questions that can be answered by longitudinal studies.

The first question of concern in the present study was: When studied longitudinally, is there a fourth grade slump? Even after my associates and I had demonstrated with cross-sectional data for a period of several years in several different localities within the United States that there was a fourth grade slump, many investigators and critics questioned its reality. They offered many alternative explanations of these findings in denial of what appeared to me to be a slump in creative functioning in the fourth grade.

The second question of interest in this study virtually assumes a positive answer to the first question. It is: To what extent does the fourth grade slump occur? Do all children experience this slump? What proportion of them experience it? Do all of these children recover in the fifth grade? If not, what proportion of them recover and what proportion continue to drop or fail to show gains in creative functioning? Such questions as these can never be answered by cross-sectional studies and thus are of major concern in the present study.

There are a number of additional questions outside the scope of the present study that can be answered by longitudinal studies but not by cross-sectional ones. We need to ask: What are the characteristics of children who continue growing creatively through the fourth and fifth grades? What kinds of life experiences have they had? What are their personality dynamics? What are their intellectual characteristics? How do they achieve in school? Similarly, what are the characteristics of children who slump in the fourth grade and recover in the fifth? What are the characteristics of those who slump in the fourth and fail to recover in the fifth? What are the characteristics of those who show growth in the fourth grade but slump in the fifth? These questions will be asked of the larger body of data from which the data for the present investigation are drawn.

Procedures

During the period from 1959 to 1964, all children in the University of Minnesota Elementary School and a public school in Minneapolis, Minnesota, were tested each year on a battery of tests of creative thinking. The general nature of these tests has been described in preceding chapters. These tests formed the common core of tests administered to the subjects of the longitudinal study. In addition, at various times they were administered such instruments as the Just Suppose Test (Torrance, 1962), Sounds and Images (Cunnington and Torrance, 1965), Imaginative Stories, Draw a Man, Draw a House-Tree-Person, Life Experience Inventory, and Imitation.

Fairly complete data were obtained for approximately 350 children during the period from September 1959 to May 1964. For the present investigation, a random sample of 100 cases (45 boys and 55 girls) was drawn. Although data were available for many of these subjects from the first through the sixth grade, the concern of the present study was limited to the third, fourth, and fifth grades. All tests taken by the subjects from the third through the fifth grades were scored or rescored according to present scoring concepts (Torrance, 1966a). Raw scores were then converted to standard (T) scores based on fifth grade comparison group data. A mean was then obtained for each subject at each grade level for fluency, flexibility, originality, and elaboration.

To test the significance of the fourth grade slump when studied longitudinally, means and standard deviations were computed for each grade level for fluency, flexibility, and elaboration and then one-way analyses of variances were run among grades. To determine the extent of the fourth grade slump and the extent to which there was recovery or failure to recover, tabulations of drops and gains were made as follows for each of the four variables, fluency, flexibility, originality, and elaboration: (1) those who slumped between the third and fourth grades, (2) those who showed growth between the third and fourth grades, (3) those who slumped between the fourth and fifth grades, (4) those who showed growth between the fourth and fifth grades, (5) those who showed a net slump from the third to the fifth grade, and (6) those who showed new gains from the third to the fifth grade.

In all cases, "drops" and "gains" or "growth" were defined as changes of one-half standard deviation or more (5 T-Score or standard score points). Scores were available on all 100 subjects on fluency, flexibility, and originality, but there were no elaboration scores for some of the subjects. This resulted from the fact that during one of the critical years no figural tests were administered and the elaboration scores were based entirely upon the figural tests. All other scores, however, were determined by computing the means of the verbal and figural tests.

Results

The means and standard deviations at each of the three grade levels for each of the four creative thinking variables are shown together with the F-ratios derived from the one-way analyses of variance in Table 139.

Table 139

Longitudinal Development of Creative Thinking Abilities from Third Through Fifth Grades for 100 Children

	Third		Fourth		Fifth		
Measure	Means	St. Dev.	Means	St. Dev.	Means	St. Dev.	F-Ratio
Fluency	53.11	7.62	47.28	7.11	48.45	9.54	14.29*
Flexibility	52.60	8.74	47.59	9.46	51.29	8.70	8.37*
Originality	50.22	8.12	47.61	9.14	52.53	10.17	7.19*
Elaboration	50.21	8.52	45.84	9.61	54.29	12.03	12.56*

* Significant at .01 level.

From the data in Table 139 it will be observed that there is a drop of approximately one-half standard deviation between the third and fourth grades on all four variables. There are net drops between the third and fifth grades on fluency and flexibility but not for originality and elaboration. The greatest gain between the third and fifth grades occurs for elaboration. From the standard deviation for the fifth grade on elaboration, however, it will be noted that the variance is quite high.

The one-way analyses of variance among grade levels yield F-ratios that are in all cases statistically significant at the .01 level or better.

To examine the extent to which the fourth grade slump occurred, the frequency of occurrence of drops and gains between the third and fourth grades is shown in Table 140 for each of the four variables.

Table 140

Prevalence of the Fourth Grade Slump in Creative Thinking among 100 Children Studied Longitudinally from the Third through the Fifth Grades

Measure	Total Number	4th. Gr. Slump Number	4th. Gr. Slump Percent	4th. Gr. Growth Number	4th. Gr. Growth Percent
Fluency	100	59	59	11	11
Flexibility	100	61	61	20	20
Originality	100	46	46	22	22
Elaboration	40	18	45	15	38

Table 140 gives a very definite picture of decline rather than growth between the third and fourth grades, when the subjects are studied longitudinally. From 45 to 61 percent show drops while from 11 to 38 percent show growth. The differences in proportions of decreases and increases are statistically significant except for elaboration. In spite of the limitations imposed by the missing data on elaboration, there seems to be a somewhat clear tendency for growth in elaboration to be more common than for the other variables.

To obtain a picture of the fifth grade slump similar to the one just described for the fourth grade, the frequency of increases and decreases of five or more standard score points was tabulated and summarized in Table 141.

Table 141

Prevalence of Fifth Grade Slump and Recovery in Creative Development among 100 Children Studied Longitudinally from Third through Fifth Grades

Measure	Total Number	5th Gr. Slump Number	5th Gr. Slump Percent	5th. Gr. Growth Number	5th. Gr. Growth Percent
Fluency	100	29	29	33	33
Flexibility	100	19	19	48	48
Originality	100	16	16	52	52
Elaboration	46	8	17	27	59

The picture of the fifth grade slump shown in Table 141 is almost the reverse of that obtained for the fourth grade as shown in Table 140. From 17 to 29 percent slumped while from 33 to 59 percent registered gains. The proportion of gains over losses was statistically significant at the .01 level of confidence or better for flexibility, originality, and elaboration but not for fluency. This suggests some tendency observed elsewhere for children at this stage to sacrifice fluency for such qualities as flexibility, originality, and elaboration.

To examine the net effects of the increases and decreases between the third and fifth grades, the data shown in Table 142 were generated.

Table 142

Net Effects of Slump and Growth between Third and Fifth Grades in Creative Development among 100 Children Studied Longitudinally

Measure	Total Number	Net Growth		Net Slump	
		Number	Percent	Number	Percent
Fluency	100	17	17	52	52
Flexibility	100	24	24	38	38
Originality	100	38	38	27	27
Elaboration	52	22	42	11	21

It will be noted here that the picture varies from one variable to another. For fluency, we have a picture of a net slump for the period and the proportion of slumps is significantly greater than the proportion of gains at the .01 level. The trend for flexibility is one of slump and that for originality one of growth, but the differences in proportion between increases and decreases are not statistically significant. The trend for elaboration is one of growth and is statistically significant at the .01 level of significance.

Summary

From September 1959 to May 1964 the children enrolled in a university and a public elementary school were tested each year with a battery of tests of creative thinking. Relatively complete data were obtained for 350 children. A random sample of 100 cases was drawn from this pool for further analysis. All raw scores were converted to standard or T-scores based on fifth grade comparison group norms.

The results showed that when studied longitudinally, there are statistically significant slumps in fluency, flexibility, originality and elaboration. Although from 45 to 61 percent of the subjects showed significant slumps (losses of five or more standard score points), there were a few who showed significant increases ranging from 11 percent on fluency to 38 percent on elaboration. There is a general recovery trend in the fifth grade but from 16 to 29 percent show decreases of five or more standard score points between the third and fifth grades. Many children end up with lower scores in the fifth grade than they attained in the third grade. The proportion ranges from 21 percent on elaboration to 52 percent on fluency. In general there is the strongest tendency for growth in elaboration and the weakest in fluency.

The picture obtained from these longitudinal analyses is quite similar and in no way contradictory to that obtained from the cross-sectional studies reported in Part I of this report.

PART IV

Chapter 12

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Part I. Cross-Cultural Studies of Creative Development in Seven Selected Cultures

Introduction

Theorists and researchers in the field of human development have for hundreds of years been divided on the issue as to whether it is healthy for intellectual development to be continuous or discontinuous and in stages. Such educators as Pestalozzi and Froebel argued strongly for the concept of continuity of growth while Freud, Sullivan, Erikson, and others have emphasized the concept of stages of development. When various aspects of mental development have been studied empirically and quantitatively, the occurrence of stages has been revealed. These discontinuities have generally been accepted as inevitable and healthy in spite of the fact that they are quite frequently accompanied by behavioral problems, difficulties in learning, emotional disturbance, and other symptoms of poor mental health.

For many years psychologists and educators have observed a rather severe discontinuity in creative functioning and development at about ages nine and ten (fourth or fifth grades). Seldom was any attempt made to quantify and document this discontinuity. Perhaps it was too obvious to require such documentation. Near the end of the Nineteenth Century, however, researchers began documenting this slump in creative thinking. Examples are found in the research of investigators such as Kirkpatrick, Simpson, Torrance and Hiller, Axtell, and others. At the same time, other investigators documented other discontinuities of development that are logically related to the one in creative thinking. Barber and Calverly found that at this fourth-grade stage, children are more suggestible; McConnell found that they possessed greater visual perceptual suggestibility; L'Abate found an increase in uncertainty behavior; Barkan detected an increase in perfectionistic tendencies; and Boland found a decrease in willingness to take a dare.

Original data have been cited to support the existence of important discontinuities in education and in society at about the time a child enters the fourth grade in our dominant, advantaged culture of the United States. Parents become greatly concerned about the problems exhibited by children at this stage of development, as measured by the number of letters written to the investigator. Statistics concerning mental health and psychoeducational clinic referrals in Atlanta, Los Angeles, and Minneapolis show sharp upswings in the number of referrals during the fourth and fifth grades.

In an attempt to investigate the universality of the slump in creative development and functioning at the fourth grade level, cross-sectional studies of creative development were conducted in each of seven different cultural groups. It was thought that data thus derived would help resolve the issue as to whether the fourth grade slump in creative development is culture-made or natural and inevitable. The cultures selected for study were as follows:

(1) An advantaged, dominant subculture in the United States (a suburban, all white school in the Minneapolis, Minnesota area).

(2) A disadvantaged, minority subculture in the United States (a segregated, Negro school in Georgia)

(3) An almost primitive culture with a reputation for suppressing creative functioning and development and resisting change (mission and government schools in Western Samoa).

(4) A European culture with a history of creative achievement and known to be relatively low in peer-orientation (two schools in West Berlin, Germany, one in a workman's neighborhood and another in an advantaged, suburban neighborhood).

(5) A European culture with a history of limited creative achievement (two schools in Norway, one in an isolated mountain village and rural area and another in a suburban area near Oslo).

(6) Another English speaking culture with a reputation for strong authority control and weak peer-orientation (an urban and rural school in Western Australia).

(7) An underdeveloped and emerging culture made up of many rather distinct subcultures with different languages (seven schools in New Delhi, India, each representing a different culture).

Methods

The basic plan of this set of cross-cultural studies of creative development called for the administration of figural and verbal batteries of creative thinking ability in each of the seven cultures to samples of children from the first through the sixth grades. The cultures were chosen on the basis of known differences in the way they deal with creative behavior and encourage or discourage the characteristics judged to be essential to the development of creative personalities.

In addition to the basic data -- responses to the battery of creative thinking tests by samples of 500 to 1000 children from grades one through six in each of the seven cultures -- supplementary data were collected to help in understanding and interpreting performance on the tests of creative thinking. Except in Norway, teachers were interviewed concerning their classroom practices, their philosophy of education, and their concepts of what kinds of behavior should be encouraged and discouraged among children. Except in Western Samoa and Australia the fourth and fifth grade children wrote imaginative stories concerning animals and persons with divergent characteristics. Children in each of the samples indicated their occupational choices or aspirations. In some instances, special analyses were made of the children's literature in the culture with special reference to the characteristics encouraged and discouraged in the stories.

In all seven samples, three figural and six verbal tests were used for assessing the creative thinking abilities. In most instances, the verbal tests were not administered below the third grade. These batteries had been developed by the investigator and are now available rather generally for research purposes. The tests were translated by language experts into the native languages or dialects of the subjects. In all instances subjects were encouraged to respond in the language and dialect in which they felt most comfortable. In most instances, responses were translated into English and the translated responses were scored. Most of the test booklets were scored three or four times. The final scoring was accomplished by a single person, however, using the most up-to-date scoring concepts uniformly.

Data collection was accomplished in 1960 and 1961, in almost all cases near the end of the school year for the children concerned. (For children in Minneapolis, Minnesota, the end of the school year meant May and in Norway it meant June; in Western Samoa and in Western Australia it meant November.) The final scoring and statistical analysis of the data were accomplished during the summer and fall of 1967.

Results

Evidence was presented to support the argument in favor of a high degree of commonality in the dominant, advantaged culture of the United States. On the Ideal Pupil Checklist, the rank-order correlations among different groups of teachers in such diverse localities as Minnesota, California, New York, Georgia, Mississippi, and Michigan are all quite high (.95 and higher). When the rankings obtained from data supplied by 1512 teachers in the dominant, advantaged culture of the United States were correlated they were moderate or low. The rank order coefficients or correlation between each of the cultures from whom data were obtained and the U.S. comparison group and expert ratings of the ideal creative personality are as follows:

	Rank-Order Coefficients of Correlation	
Comparison Group	U.S.A. Teachers	Expert Panel
U.S.A. Comparison Group	.96	.43
U.S.A. Negroes	.78	.21
Western Australia	.85	.19
Western Samoa	.56	.17
West Germany (Berlin)	.81	.37
India (New Delhi)	.81	.11

From the rank-order coefficients or correlation between the rankings by teacher of the six groups and the rankings of the expert panel, the predicted levels of creative funcioning would be as follows:

1. U.S.A. Dominant, Advantaged Culture
2. West Germany, Inner City and Suburban
3. U.S.A. Negroes, Disadvantaged Culture
4. Western Australia, Urban and Rural
5. Western Samoa, Urban Mission and Remote Government Schools
6. India, Christian Mission, Muslim, Sikh, and Nationalistic Schools.

This prediction is borne out quite well in the data obtained in this study on the level of creative functioning of fourth grade children. The mean scores at the fourth grade-level on each of the measures were converted to standard or T-score equivalents for each of the cultures. (Standard scores were based on U.S.A. Comparison Group data for the fourth grade.)

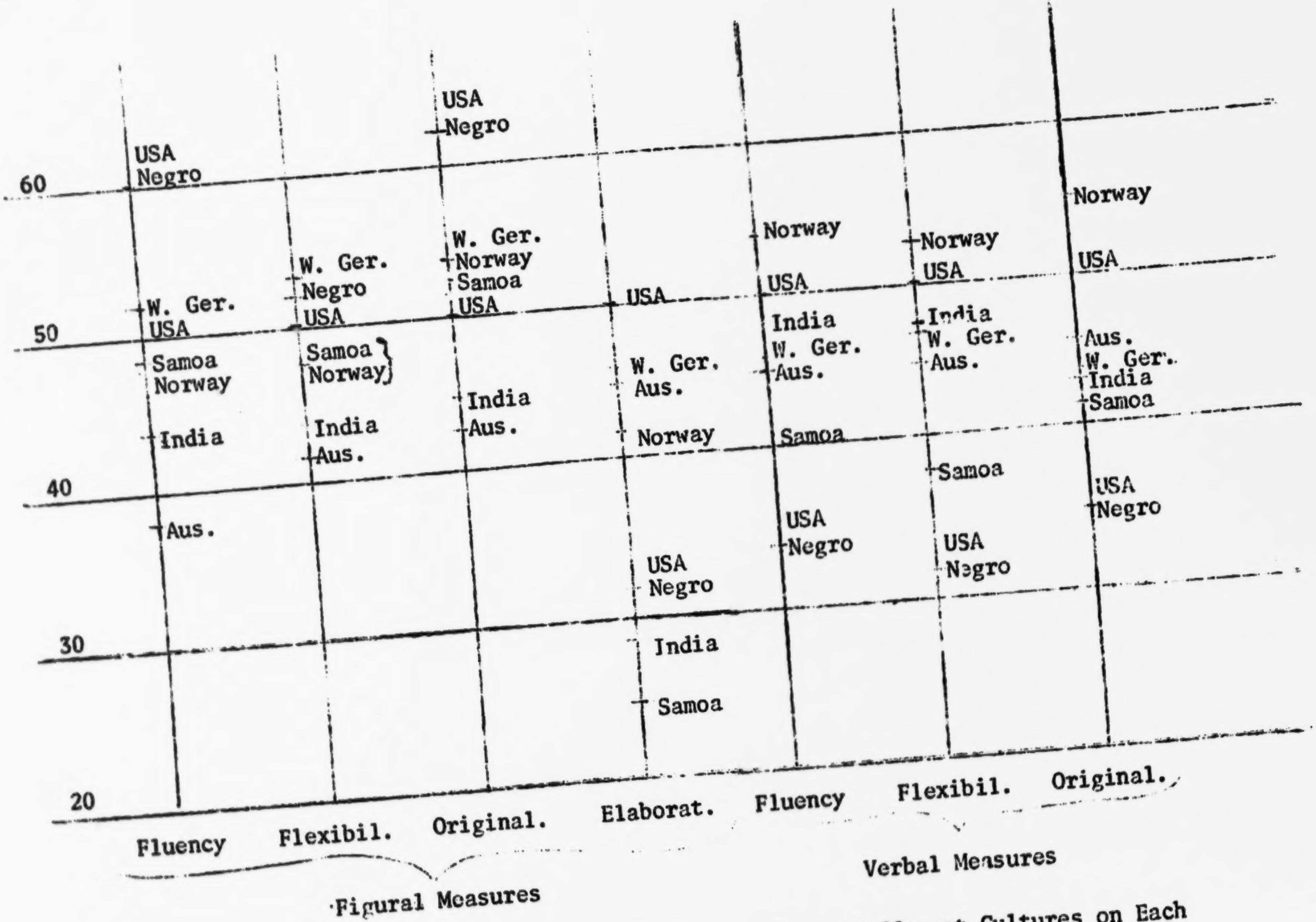

Figure 34. Relative Standing of Fourth Graders in Seven Different Cultures on Each of Seven Measures of Creative Thinking

The sums of these standard scores were then obtained and the following following rankings resulted:

	Total
1. U.S.A. Comparison Group	350
2. West Germany	341
3. U.S.A. Negro	307
4. Western Australia	305
5. India	298
6. Western Samoa	295.

It will be observed that only one small error in prediction occurred, giving a rank order correlation of .97 between the predicted rankings and the actual rankings.

Figure 34 presents more detailed information concerning the relative standing of the seven cultures at the fourth grade level on the seven creative thinking variables. It will be noted that the rankings shift somewhat from variable to variable. In the discussion, it will be argued that these shifts can be explained logically on the basis of the way children at about the fourth grade level are treated in the culture and in terms of what kinds of behavior are encouraged or discouraged throughout the culture.

In a number of ways, the creativity level of a culture as a whole may be distorted by using only the fourth grade data. In order to make use of all of the data from the creative thinking test performances, an overall creativity index was developed for each of the seven groups. All mean raw scores at each grade level were converted to T-score equivalents based on the U.S.A. Comparison Group data for the fifth grade. A mean figural and a mean verbal score were then computed for each of the seven cultures. The creativity index is the sum of these two means. This procedure resulted in the following mean scores and rankings:

Rank	Culture	Figural	Verbal	Total
1	U.S.A. Comparison Grp.	47.3	49.9	97.2
2	West Germany	45.3	47.2	92.5
3	Norway	43.1	45.2	88.3
4	Western Australia	39.4	42.7	82.1
5.5	U.S.A. Negro	42.9	37.1	80.0
5.5	India	37.3	42.7	80.0
7	Western Samoa	40.4	38.9	79.3

Going back to the rankings derived from the rank-order correlations obtained between the rankings of the teachers of the characteristics of the Ideal Pupil Checklist with the rankings obtained by the expert panel with the productive, creative person as the criterion, a rank-order correlation was run against the above rankings (omitting Norway, of course). A rank-order coefficient of correlation of .96 was obtained.

In obtaining the data concerning occupational choices and aspirations, it was hypothesized that the freedom to grow creatively will be influenced by the freedom of children to consider a diversity of occupations and to consider the creative occupations as possibilities. There are many alternative methods of obtaining an index of this freedom, but the one chosen for this study is the sum of the percentage of all children in the sample choosing occupations outside of the twenty-five most popular occupations or occupations in visual art, music, dance, and drama. The following rankings and indexes resulted from this procedure:

Rank	Culture	Index
1	U.S.A. Comparison Group	47
2	West Germany	30
3	Australia	21
4	Norway	14
5.5	U.S.A. Negro	10
5.5	India	10
7	Western Samoa	7

It will be noted that the rankings obtained here are with one minor exception identical with the rankings based on the total performance of all grades on the creative thinking tests. The rankings for Norway and Western Australia are reversed. The rank-order coefficient between the two sets of rankings is .96.

The overall indexes in standard or T-score units also provide a helpful way of examining the continuity and discontinuity phenomena. These data are summarized in Table 143. Speaking in rather general terms, the U.S.A. comparison group showed decreases in both the figural and verbal measures between the third and fourth grades and showed some recovery between the fourth and fifth grades.

The German children experienced a slight slump in the second grade on the figural measures and reached an apex in the fifth grade. Their most serious decrease occurred between the fifth and sixth grades on the figural measures. During this period, however, there was a considerable increase in performance on the verbal measures.

The Norwegian children experienced a slump in figural performance in the sixth grade and one in verbal performance in the fifth grade.

Table 143

Comparison of the Mean Figural and Mean Verbal Scores for Each Culture at Each Grade Level Expressed in Standard (T-Score) Units

	1st. Gr.	2nd Gr.	3rd. Gr.		4th. Gr.		5th. Gr.		6th Gr.	
Culture	Fig.	Fig.	Fig.	Verb.	Fig.	Verb.	Fig.	Verb.	Fig.	Verb.
U.S.A. Comp.	43	48	47	54	44	46	50	50	51	50
Germany	43	41	43	42	46	42	59	49	40	57
Norway	40	44	43	41	44	49	46	45	43	46
Australia	39	40	36	40	39	42	41	44	41	45
USA Negro	33	43	46	37	48	36	--	36	--	40
India	32	34	36	42	42	42	43	40	37	48
W. Samoa	36	40	40	38	42	37	42	39	43	41

The Australian subjects showed a fairly severe slump in figural performance in the third grade but showed no slump in verbal performance.

The U.S.A. Negro children showed no slump through the fourth grade on the figural measures but data for the fifth and sixth grades on the verbal tests were not obtained. There was little increase or decrease in verbal performance until the sixth grade.

The subjects in India showed their slump in figural performance in the sixth grade. As with the Negro group, there was little change in the level of verbal functioning until the sixth grade at which time there was an increase of almost a standard deviation.

Among the Western Samoans, there was little growth reflected on the figural measures except between the first and second grades. At no time was there much growth on the verbal measures.

It is interesting to note that the children in some cultures tended to perform at a relatively higher level on the figural tests, while those in other cultures performed at a relatively higher level on the verbal ones. The German, Norwegian, Australian, and Indian groups tended to perform somewhat better on the verbal than on the figural measures while the Samoan and Negro children functioned at a higher level on the figural measures.

In almost all of the seven groups, the mean developmental profiles show significant departures from linearity. In the more disadvantaged cultures such as Western Samoa and the U.S.A. Negro groups, the departure from linearity seems to have resulted from a lack of growth. In most cases, however, the departure from linearity seems to have been associated with sharp decreases in performance at some grade level, the grade level varying from culture to culture but generally occurring at about the end of the third or beginning of the fourth grade. When specific groups within the larger samples are studied separately, continuities and discontinuities of development occur with considerable clarity. This is illustrated by Johnson's analyses of development in the mission schools with their discontinuities in contrast to the highly continuous culture of the isolated government schools where traditions are staunchly maintained and a recently acquired alphabet has had little impact. It is also illustrated in the analyses of Prakash in India. Where British and American influences have been strongest, the discontinuities are clearest. Where the native culture and language predominates, the continuities are clearest.

Discussion and Conclusions

The combined evidence presented in this report support the idea that cultural factors strongly influence the course of creative development, the level of creative functioning, and the type of creative functioning that flourishes most. In some cultures, development is relatively continuous. In others, there is little growth during the elementary school years. In most, however, there are discontinuities. In general, these discontinuities occur at about the beginning of the fourth grade or the end of the third grade; in some groups, discontinuities do not appear until the sixth grade. There are a number of indications that these discontinuities occur within a culture whenever children in that culture are confronted with new stresses and demands. When Christian missions and similar groups establish schools in underdeveloped areas, they apparently bring both a stimulating and a disrupting influence on development, producing discontinuities in creative development.

The anthropologically-oriented interviews with the teachers of the subjects of this study, the analyses of the imaginative stories written by the subjects, the studies of the children's literature and folk stories of the cultures, the Ideal Pupil Checklist data supplied by the teachers, analyses of the occupational choices and aspirations of the subjects, and the independent studies of other investigators of the particular cultures under study provide many possible explanations of the findings of this study. At a gross, general level, the occupational choice data and the teachers' responses to the Ideal Pupil checklist seem to be related to the overall level of creative functioning of the children within a culture. This does not mean that other clues given in these studies are not as powerful, but these data were collected from all or almost all of the cultures in a rather uniform manner and it is possible to derive meaningful indexes from them. When the composite rankings of the teachers of six of the seven cultures were correlated with the rankings of an expert panel in terms of the ideal, productive, creative personality, we can order the cultures in terms of the creative functioning of the children of that culture rather accurately (rank-order coefficient of correlation, .94). When we derive an index from the percentage of occupational choices and aspirations outside a list of the 25 most popular occupations with children in the United States and add to it the percentage who express a desire to be visual artists, actors, musicians, dancers, and scientists, the resulting index also makes possible a rather accurate ordering of these cultures in terms of the creative functioning of the children in those cultures (rank-order coefficient of correlation of .96).

When we seek greater precision and attempt to explain differential levels of functioning on the figural and verbal measures of fluency, flexibility, originality, and elaboration, we have to look more closely at the above data and at other characteristics of the cultures involved. The more highly developed cultures such as the U.S.A. Advantaged culture, West Germany, Australia, and Norway stand separately from the more underdeveloped cultures such as the U.S.A. Negro group, Western Samoa, and India on elaboration. In the more developed cultures, complexity and elaboration are required for satisfactory adjustment. In the less developed countries, such complexity of thinking might be maladaptive. Something simpler is frequently more effective in these cultures.

Except for India, children in the underdeveloped countries performed quite poorly on the verbal tests. Western Samoa has had a written language for only a few years and textbooks and books of all kind are still quite rare. In the U.S.A. Negro culture, numerous studies have also pointed to the lack of books, lack of perceptual awareness, gross deficiencies in all kinds of verbal skills, and the like. In India, however, there is great emphasis on language. Even for a marginal adjustment in a metropolis such as Delhi one must know two or more languages. The school curriculum is overloaded with languages and instruction frequently is conducted in two or more languages. Thus, there is great emphasis on verbal development.

The U.S.A. Negroes are among the best on figural fluency and originality and lower than any other group on the verbal measures. Where words are not required they can produce many ideas quickly and can make the mental leaps that make it possible for them to get away from the obvious and commonplace. Yet they have serious difficulty in elaborating these ideas and in expressing ideas in words. The Australians show up as inhibited in the figural fluency, flexibility, and originality, yet they rank rather high on figural elaboration even though they produced few ideas. In the United States, this characteristic has been associated with what occurs among pupils taught by high controlling teachers. The data supplied by the teachers themselves and by independent observers do indeed characterize Australian teachers as highly controlling.

Throughout the interview data supplied by the teachers and the independent cultural studies, there were indications of differential treatment for boys and girls. A thorough study of sex differences and the relationships of these differences to the differences in treatment should be made. Already, an examination of the data from the U.S.A. comparison group suggests a general superiority of boys over girls on figural elaboration and the verbal measures in the upper grades. In two independent studies in India, Prakash (1966) and Raina (1966) found that boys excelled girls on almost all measures, especially the verbal one.

Part II. Development of Conformity Behavior

Introduction

Since compulsive conformity has long been regarded as antithetical to creative thinking, information regarding the development of conformity behavior seems important in understanding the fourth grade slump. Various aspects of conformity have been explored over the age range with which we are concerned, but little attention has been given to the need for consensual validation from one's peers regarded as important in the conceptualization of the program of studies described in this report.

Costanzeo and Shaw (1966) conducted one study in which conformity increased with age between seven and twenty-one years until adolescence is reached and then it decreased. Girls proved to be more conforming than boys. Crandall, Orleans, Preston, and Rabson (1958) found differences between peer-compliant and adult-compliant children, a differentiation important in understanding the shift from adult compliance to peer compliance at about the time the fourth grade is attained. Iscoe, Williams, and Harvey (1964) found that conformity increased from age seven to age nine and decreased after age twelve. When they increased the difficulty of the problem, these same investigators found that females increased in conformity to age twelve and that males increased to age fifteen. Until age twelve, females were more conforming than males. Cruse (1963) found that conformity behavior increased from the first to the fifth grades and leveled off between the fifth and seventh grades and decreased after that. Harper, Hoving, Holm, Sasso, and Datanoski (1965) found that the sex of the examiner had no effect on the conformity of children and that sex differences in yielding to false adult judgments were not statistically significant. Duncker (1938) with children aged two to five, found that conformity increased with age and that younger children imitated older ones.

No studies were identified that dealt specifically with changes that may occur at about the fourth grade level. In fact a number of studies involved third and fifth grade children but not fourth grade ones. The studies described in this report concentrated on this stage of conformity development and more specifically upon the sources children used spontaneously to check their ideas.

Methods

In five of the studies on conformity development, the methods were basically the same. A problem was presented to classes usually ranging from the third through the fifth grades, and in one case from the second through the sixth grades, either early in the morning and again late in the afternoon or late in the afternoon and again early in the morning. At the time of the second administration the subjects were asked to indicate what persons they had consulted about the problem during the intervening period. The nature and the difficulty of the problem were altered and the experiments were conducted in a variety of schools and during three different years. In the sixth study, the subjects were three, four, and five year old children and they were administered the Starkweather conformity form board test.

Results

In the first study, it was found that there was a distinct drop in the extent to which children consult adults and a distinct increase in the extent to which they consult peers at the fourth grade level. The fourth graders, however, were more resistant than those at other levels to the acceptance of an incorrect response planted in the classroom.

In the second study, decreasing the difficulty of the problem and extending the grade range from second through sixth grade did not change the pattern of behavior under study. With an increase in educational advancement in the elementary grades there was an increase in the extent to which children checked their solutions with peers and a decrease in the extent to which they checked with adults.

In the third study, it was found that the sex of the investigator and the section of the country did not change the pattern of behavior occurring. In addition, it was found that there is at the fourth grade a drop in the proportion of children who failed to discuss the problem with anyone. The proportion continued to decrease through the fifth grade.

In the fourth study, a figural rather than an arithmetic problem was used and essentially the same results were obtained as had been shown in the first three studies. Increasing the difficulty of the figural problem failed to influence the essential results. With the more difficult problem, there was slightly more consulting with adults and slightly less consulting with peers but the change was not statistically significant at the .05 level of confidence.

In the sixth study, it was found that there are no differences in conformity tendencies with age during the three to five-year period. A difference was found between boys and girls at the five-year level, with girls being more conforming than boys.

Discussion

From the first five studies in this series, it may be said that the fourth grade is marked by a general increase in discussing problems with others. The increase, however, is apparently due to a rise in the tendency to discuss problems and check information with peers. There is generally a decreased tendency to discuss problems with parents, teachers, and other adults at home and at school. Since there is a tendency to check everything with peers as though to obtain consensual validation, this is likely to reduce originality of expression and generally to decrease the output of ideas, questions, and the like. It is also likely to increase hesitation, uncertainty, willingness to take dares, and the like as shown in other studies.

In the sixth study, the finding of no difference between the groups of three-, four-, and five-year olds indicates that age by itself may not be a factor affecting the extent to which children exhibit conforming behavior. On the other hand, the finding that towards the end of the first year of preschool experience, the sexes perform differentially at the older, five-year age level indicates that age, perhaps in combination with factors associated with sex roles, may possibly contribute significantly to conforming behavior.

Part III. Longitudinal Studies of Creative Development

Introduction

Cross-sectional studies of creative development leave unanswered many important questions. There is always the lingering doubt that specific children will not show decreases in creative functioning at the fourth grade level, even though the cross-sectional data from different localities and at different times rather consistently showed such decreases. The cross-sectional data do not permit us to say what proportion of the children in a society experience this slump and what proportions recover or fail to recover in the fifth and subsequent grades.

Method

From September 1959 to May 1964, all children in two elementary schools were tested each year with one or more batteries of creative thinking tests developed by the author. Fairly complete data were obtained for 350 children. For the present study, a random sample of 100 cases (45 boys and 55 girls) was drawn. All of the tests taken by these 100 subjects in the third, fourth, and fifth grades were scored and the scores were converted to standard or T-score units. A mean was obtained for each subject at each grade level for fluency, flexibility, originality, and elaboration.

To test the significance of the fourth grade slump when studied longitudinally, one-way analyses of variance were run among grades. Tabulations were also made from the data for individuals on gains and losses exceeding one-half standard deviation between the third and fourth grades, the fourth and fifth grades, and the third and fifth grades separately for each of the variables and the mean total scores.

Results

There was a mean drop of about one-half standard deviation on each of the four variables and the mean total score. The one-way analyses of variance showed that all of these decreases were significant at the .01 level of confidence or better. The following overall means and standard deviations summarize the findings fairly well:

Grade	Mean	St. Dev.
3	51.79	7.58
4	47.14	7.19
5	51.28	7.74

The percentage showing decreases of one-half or more standard deviations between the third and fourth grades ranged from 45 percent for elaboration to sixty-one percent for flexibility. Gains of this magnitude during this period ranged from eleven percent on fluency to 38 percent for elaboration. On overall means, fifty percent showed decreases of one-half or more standard deviations and fifteen percent showed gains of this magnitude.

The percentage dropping one-half or more standard deviations in the fifth grade ranged from 16 percent for originality to 29 percent for fluency. Percentages gaining this amount ranged from 33 percent on fluency to fifty-nine percent on elaboration. The general trends between the fourth and fifth grades was one of growth. On overall means, fifty-four percent increased one-half or more standard deviations while twelve percent were decreasing to this extent.

The overall means for the third and fifth grades are about the same. The percentage showing losses of one-half or more standard deviations between the third and fifth grades ranged from 17 percent on fluency to 42 percent on elaboration and the percentage who gained ranged from 21 percent on elaboration to 52 percent on fluency. On overall means, thirty-three percent registered losses of one-half standard deviations or more and 28 percent showed gains of this magnitude.

Discussion

The data help to satisfy any doubts that exist concerning the occurrence of a fourth grade slump. It is true, however, that not all children show this decrease in creative functioning during the fourth grade period. Fifty percent of the children, however, seem to show serious slumps at this particular stage of development. Many of them recover between the fourth and fifth while others do not experience a slump until they enter the fifth grade. Greatest concern, however, is for those who fail to recover at this and later stages. For example, one child performed quite brilliantly in the third grade, averaging over two standard deviations above the mean. In the fourth grade, his standard score dropped to 51 (just above the mean) and in the fifth grade it descended to 39 (over a standard deviation below the mean). A further look into his file showed that he made little or no recovery in the sixth grade.

Implications

The implications of the results reported in these studies are, in the opinion of the author, rather far-reaching and have relevance for schools, societies, families, foreign aid, Christian missions, and many other institutions. It is beyond the competency of this investigator to specify these implications at the present time. They will require much reflective and creative thinking, further testing and digging deeper into the data. Only a few of the implications will be identified at this point.

The evidence presented indicate that there are discontinuities of some kind in almost all cultures and that these influence both the level of creative functioning and the course of creative development within the culture. In the more continuous cultures, there tend not to be any slumps, but there is also not very much growth. One problem may be to maintain at the same time continuity, stimulation, and opportunities for creative achievement. At any rate, the fourth grade slump rather common in the dominant, advantaged culture of the United States, seems to be a culture-made one and not genetically determined. Experiments undertaken subsequent to these investigations (Torrance and Gupta, 1964) have shown rather conclusively that educational experences are powerful enough to prevent the fourth grade slump in creative functioning. Overall, the evidence favors the concept of continuity of growth as healthy and "normal."

The concept that "what is honored in a society will be cultivated there" in regard to creative talent is supported by the findings of these investigations. Using the gross measures obtained by correlating the rankings given by teachers in six of the cultures on the Ideal Pupil Chceklist with the rankings of these same characteristics by a panel of experts in describing the productive, fully-functioning creative person, a rank order correlation of .94 was found with the level of creative functioning of the children. Thus, the characteristics encouraged by the teachers in a society seems to affect the level of creative functioning of the children within that culture. Also, the range of occupations perceived by children as being open to them and the nature of the occupations to which they aspire reflect the way a society honors creativity and freedom of choice. An index derived from the occupational choices of the children in each of the seven cultures correlated .96 with the rank-order of the culture on the tests of creative thinking. The index consisted of the sum of the percentage of children choosing occupations outside of the twenty-five most commonly chosen occupations and the percentage who chose occupations in visual art, music, writing, dance, acting, and science.

The data seem to have some rather strong implications for the education of Negro and possibly other disadvantaged children in the United States. The Negro children showed some very definite strengths, especially in figural fluency and originality. Their greatest deficiencies seem to be in elaboration and in the verbal measures. Other data show that Negro teachers in the disadvantaged culture do not share for their children the same values that teachers in the dominant, advantaged culture hold for their pupils. It would appear that the Negro teachers feel that they must encourage and discourage certain characteristics to smooth the path of adjustment of their pupils to the dominant, advantaged culture. It so happens that many of these characteristics are the very ones that seem essential to creative functioning. It would be interesting to know if white teachers in desegregated schools would encourage and discourage the same characteristics among Negro children that they encourage and discourage among children of the dominant, advantaged culture. The range of occupational choices and aspirations perceived by the Negro children as open to them is extremely limited and they rarely aspired to creative occupations such as visual art, acting, dancing, writing, music, and science. A change in these perceptions might do a great deal to facilitate the creative development and functioning of Negro children. Such changes do not seem unrealistic, certainly not in the arts. In a creativity workshop conducted by the investigator for disadvantaged Negro children some outstanding talent for visual art, music, dancing, and acting was easily apparent. Similar implications could be drawn for the other groups studied, especially Western Samoa and India. Such implications have special relevance for Christian missions, foreign aid programs, Peace Corps operations, and the like, where work is undertaken in underdeveloped countries. Such implications are also important for Head Start programs and other "poverty" programs.

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APPENDIX A

Sample Translations and Protocols of Non-Verbal (Figural) Tests of Creative Thinking Ability

1. U.S.A. Sample (Twin Cities)
2. U.S.A. Segregated Negro School
3. Western Australia Group
4. Western Samoa Version
5. German (Berlin) Version
6. Norwegian Version
7. Indian (New Delhi) Version

1. U. S. A. Sample

NON-VERBAL CREATIVE THINKING TASKS

FORM NVA

Name: Gail Bernstein Date: May 25, 1961
Grade: 4 Teacher: Mr Myers School: U.E.S.

INSTRUCTIONS: In this booklet are three interesting things for you to do.

All of them will give you a chance to use your imagination to think of ideas. We want you to think of as many ideas as you can in all of them. We also want you to think of interesting and unusual ideas -- ideas that no one else in the class will think of. Keep adding to your ideas and building onto them whenever you can.

You will be given a time limit on each of these jobs, so don't waste time. Work fast but don't rush. If you run out of ideas before I call time, wait until I tell you before you turn to the next page.

Do not pay any attention to the rest of this page. Turn to the next page when I give you the signal.

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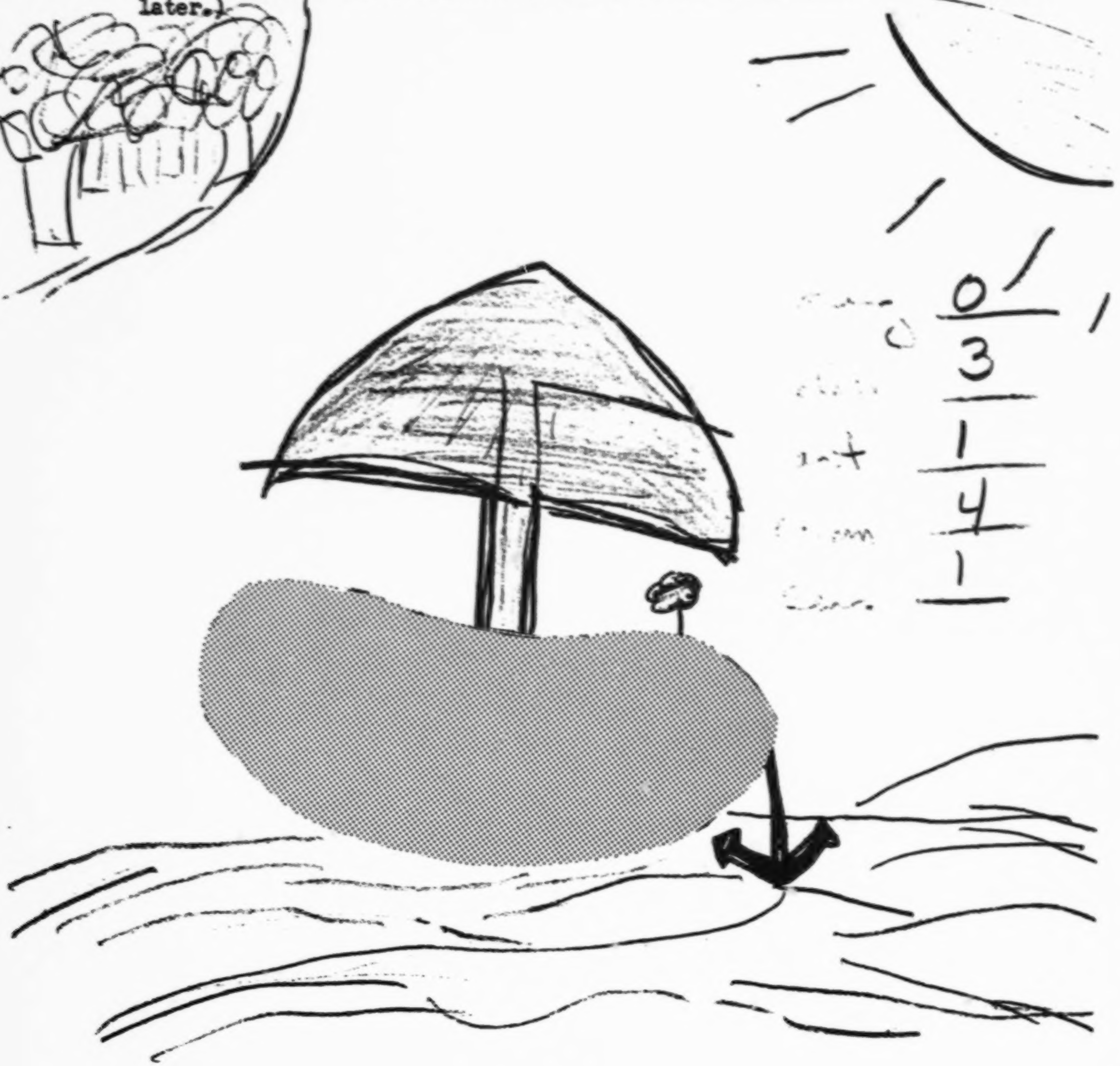
BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

TASK 1. PICTURE CONSTRUCTION (CURVED SHAPE). You have been given a piece of paper in the form of a curved shape. Think of a picture or an object which you can draw with this form as a part. Then lift up the shape and glue it wherever you want it on this sheet of paper and add lines with pencil or crayon to make your picture. Try to think of something that no one else in this class will think of. Keep adding things onto it, putting into your picture as many interesting ideas as you can. When you have completed your picture, think up a name or title for it and write it at the bottom. (Examiners and teachers will write down the titles for children under the third grade later.)



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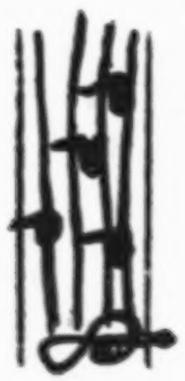
3
1
4
1

TITLE: The Runaway Boat

TASK 2. FIGURE COMPLETION. By adding lines to the six figures below, sketch some object or design. Try to think of some object or design that no one else in the class will think of. Try to include as many different ideas as you can in your drawing. In other words, don't stop with your first idea for completing the figure; keep building on to it. Make up a title for each of your drawings and write it at the bottom of each block next to the number of the figure.



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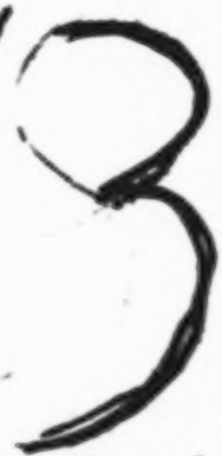
comp 1
pert 6

1 Dumb Music Class



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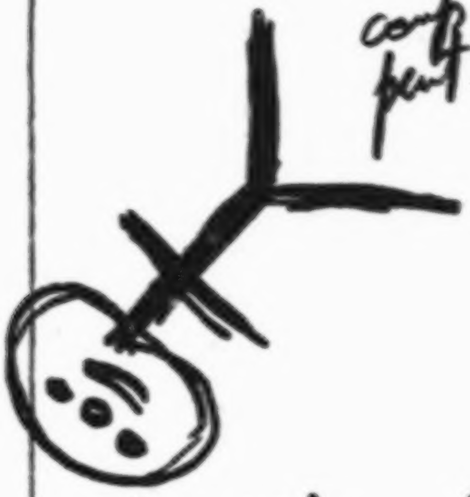
2 The Nude Three



orig 3
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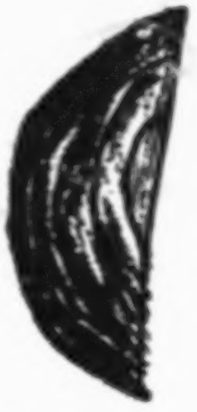
3 The Thin Man



orig 1
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4 The Beautiful Rainbow

orig 1
comp 3
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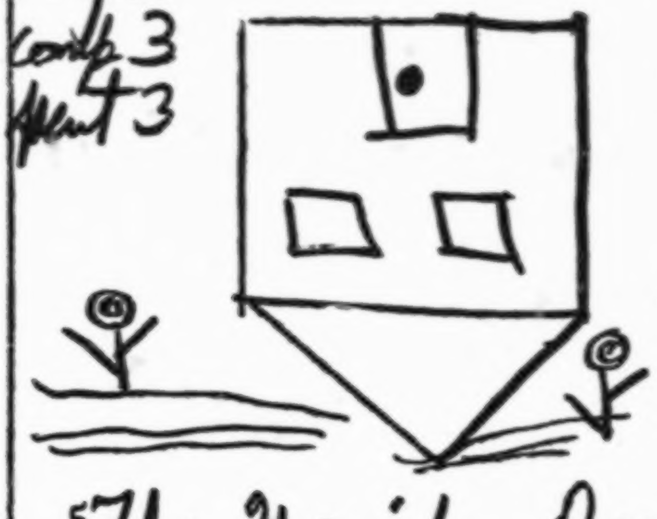
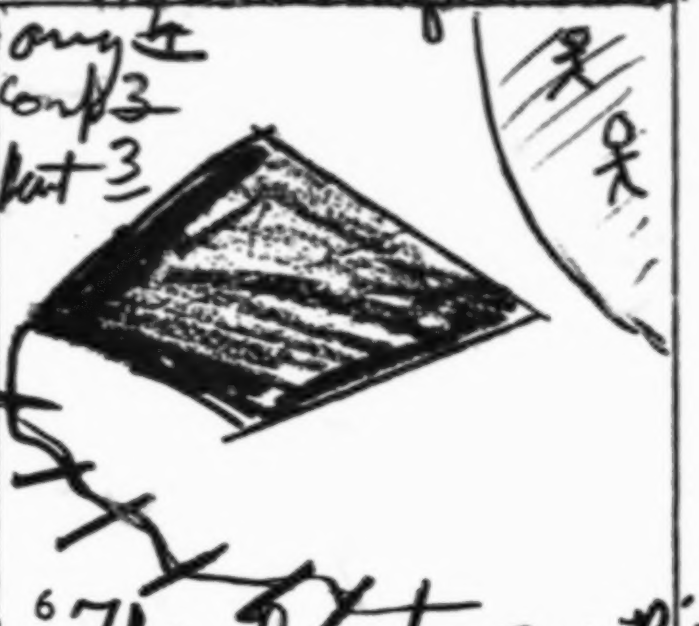


5 The Upside Down House

orig 4
comp 3
pert 3



6 The Runaway Kite

TASK 3. CIRCLES. In ten minutes see how many objects you can make from the circles below. A circle should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. Your lines can be inside the circle, outside the circle, or both inside and outside the circle. Try to think of things that no one else in the class will think of. Make as many things as you can and put as many ideas as you can in each one. Add names or titles if it is hard to tell what the object is.

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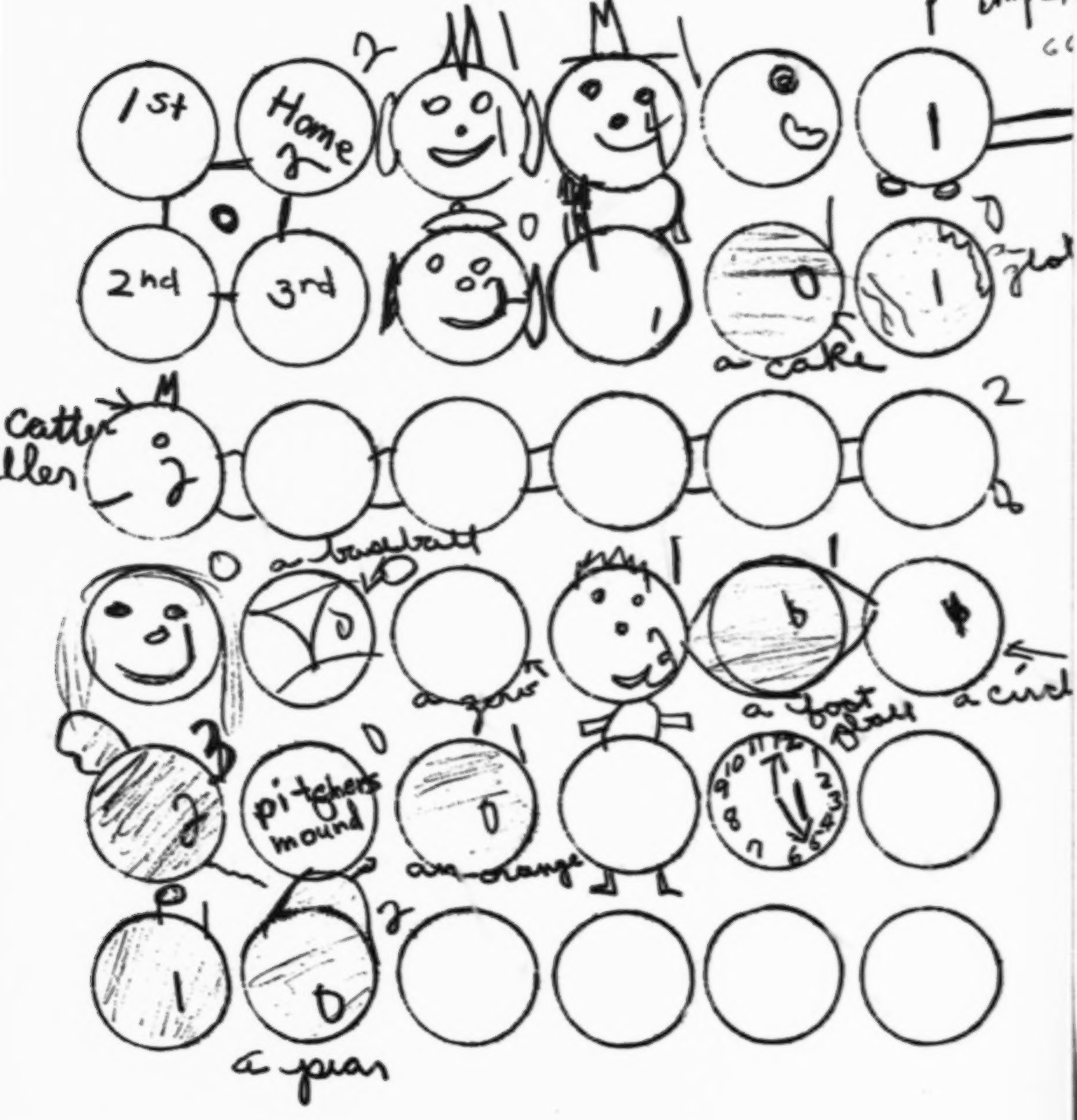

1st
Home
2nd
3rd
a cake
a glob
Catterpiller
a baseball
a gone
a foot ball
a circl
pitchers mound
an orange
a pear

2. U. S. A. Segregated Negro Sample

NON-VERBAL CREATIVE THINKING TASKS

FORM NVA

Name: Delma Galladger Date: November 14, 1960
Grade: Fourth Teacher: Mrs. Griffin School: Harrisburg

July, 1951

INSTRUCTIONS: In this booklet are three interesting things for you to do.

All of them will give you a chance to use your imagination to think of ideas. We want you to think of as many ideas as you can in all of them. We also want you to think of interesting and unusual ideas -- ideas that no one else in the class will think of. Keep adding to your ideas and building onto them whenever you can.

You will be given a time limit on each of these jobs, so don't waste time. Work fast but don't rush. If you run out of ideas before I call time, wait until I tell you before you turn to the next page.

Do not pay any attention to the rest of this page. Turn to the next page when I give you the signal.

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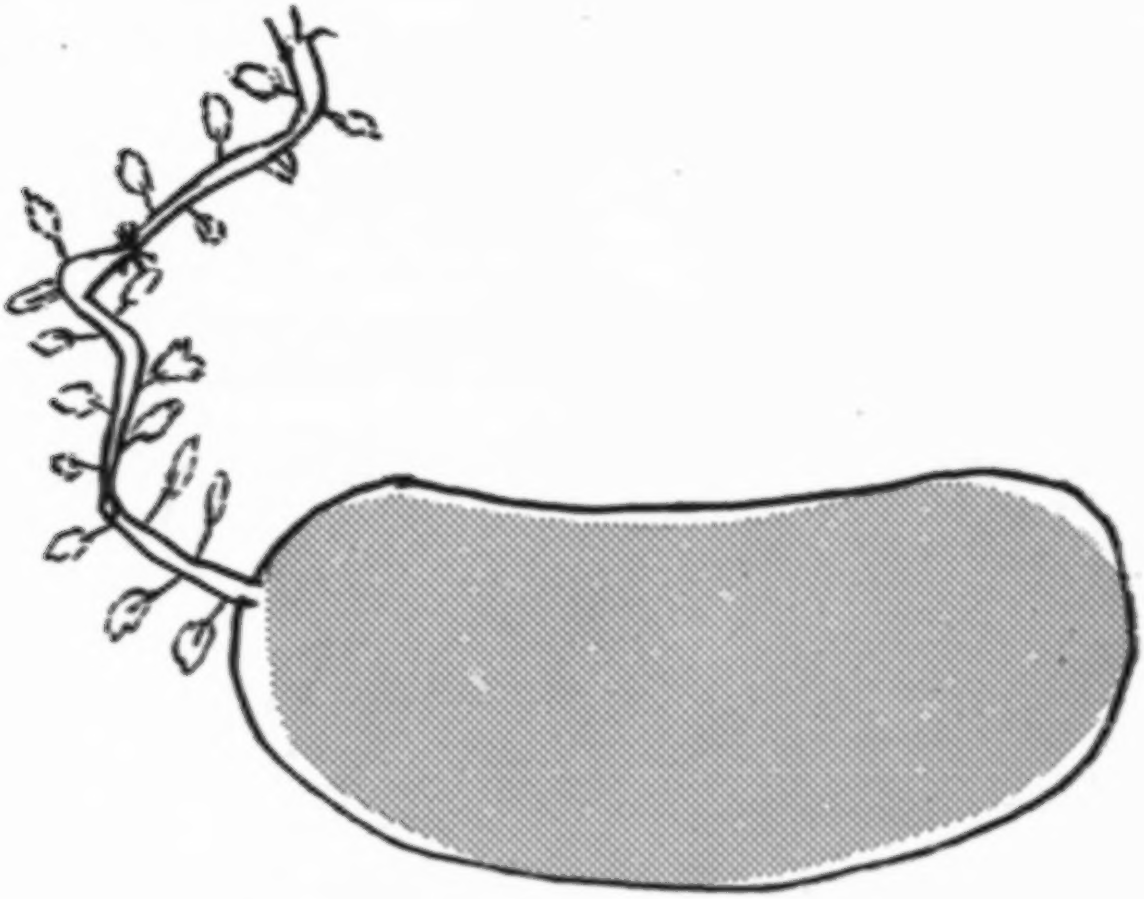
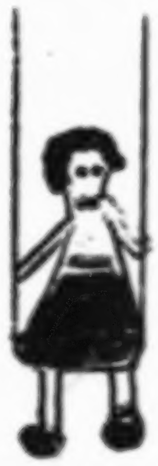
BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

TASK 1. PICTURE CONSTRUCTION (CURVED SHAPE). You have been given a piece of paper in the form of a curved shape. Think of a picture or an object which you can draw with this form as a part. Then lift up the shape and glue it wherever you want it on this sheet of paper and add lines with pencil or crayon to make your picture. Try to think of something that no one else in this class will think of. Keep adding things onto it, putting into your picture as many interesting ideas as you can. When you have completed your picture, think up a name or title for it and write it at the bottom. (Examiners and teachers will write down the titles for children under the third grade later.)



TITLE: Watermelon

TASK 2. FIGURE COMPLETION. By adding lines to the six figures below, sketch some object or design. Try to think of some object or design that no one else in the class will think of. Try to include as many different ideas as you can in your drawing. In other words, don't stop with your first idea for completing the figure; keep building on to it. Make up a title for each of your drawings and write it at the bottom of each block next to the number of the figure.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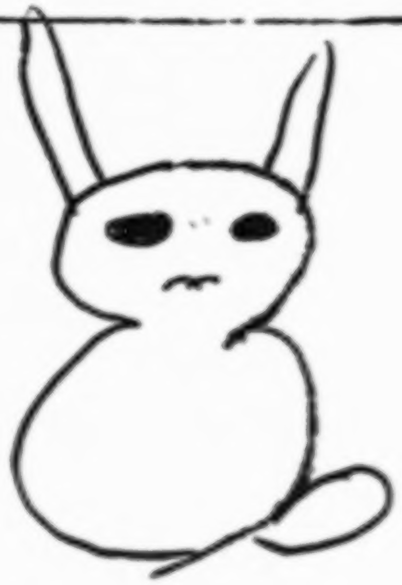
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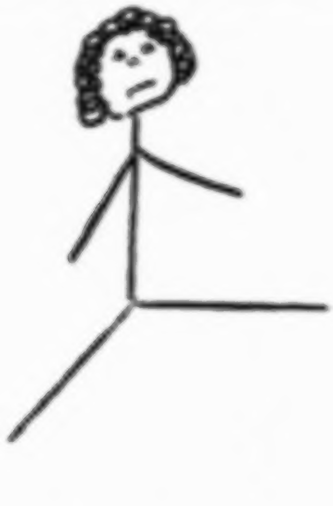
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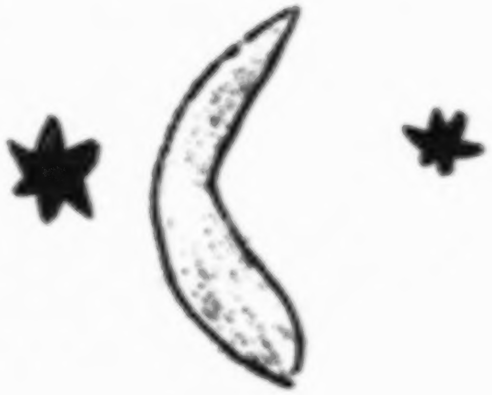
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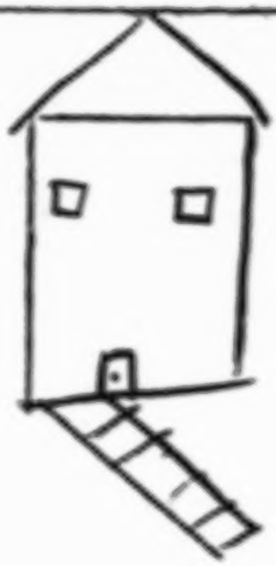
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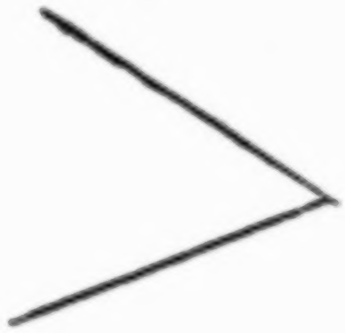
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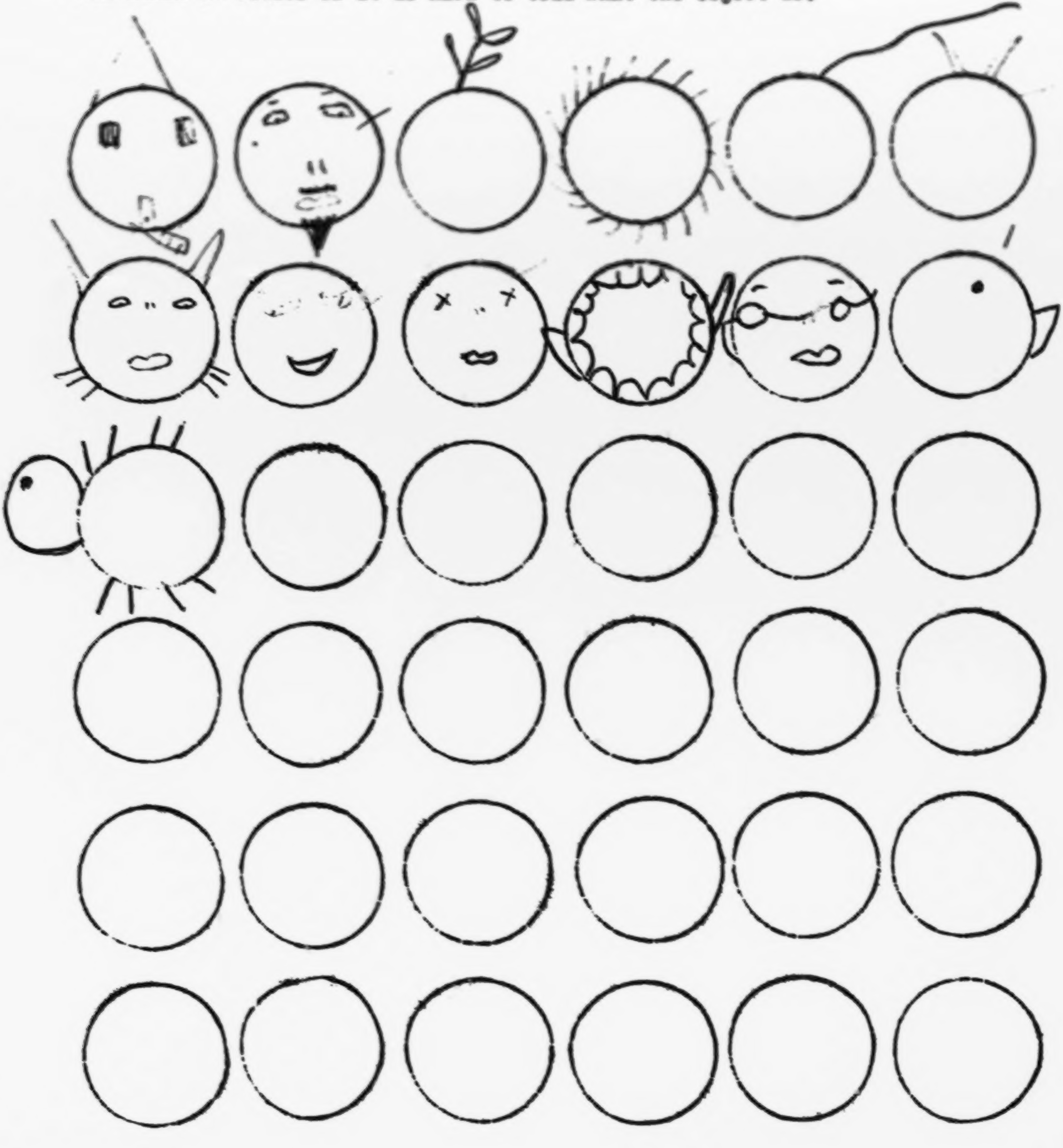
TASK 3. CIRCLES. In ten minutes see how many objects you can make from the circles below. A circle should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. Your lines can be inside the circle, outside the circle, or both inside and outside the circle. Try to think of things that no one else in the class will think of. Make as many things as you can and put as many ideas as you can in each one. Add names or titles if it is hard to tell what the object is.



3. WESTERN AUSTRALIA GROUP

NON-VERBAL CREATIVE THINKING TASKS

FORM NVA

Name: Maree Fullston Date: 22·11-60

Grade: 6.3 Teacher: Miss Owen School: Bacton

12 years

INSTRUCTIONS: In this booklet are three interesting things for you to do.

All of them will give you a chance to use your imagination to think of ideas. We want you to think of as many ideas as you can in all of them. We also want you to think of interesting and unusual ideas -- ideas that no one else in the class will think of. Keep adding to your ideas and building onto them whenever you can.

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Do not pay any attention to the rest of this page. Turn to the next page when I give you the signal.

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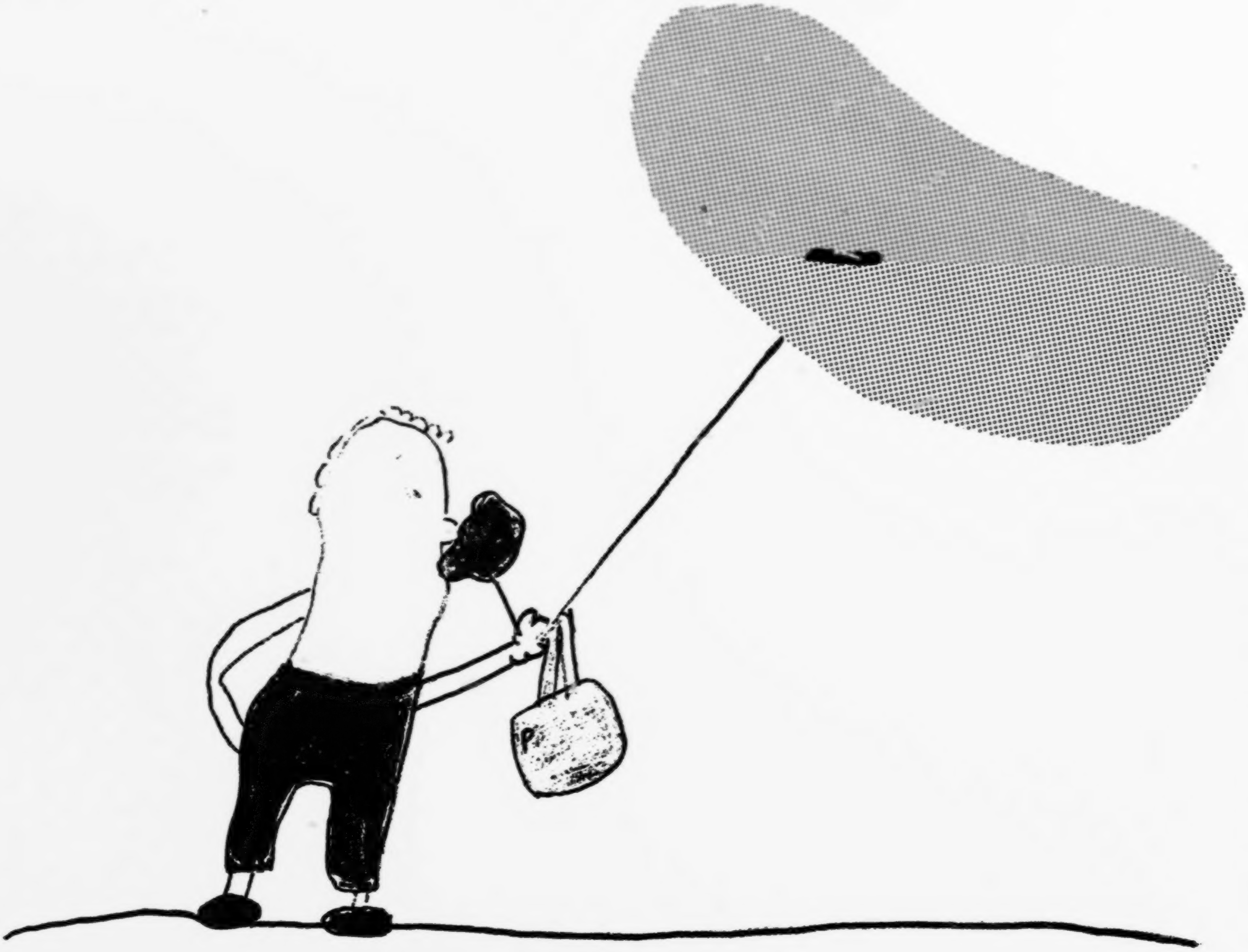
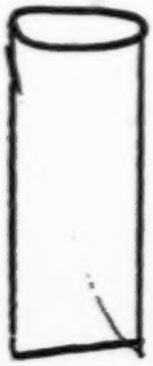
BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

TASK 1. PICTURE CONSTRUCTION (CURVED SHAPE). You have been given a piece of paper in the form of a curved shape. Think of a picture or an object which you can draw with this form as a part. Then lift up the shape and glue it wherever you want it on this sheet of paper and add lines with pencil or crayon to make your picture. Try to think of something that no one else in this class will think of. Keep adding things onto it, putting into your picture as many interesting ideas as you can. When you have completed your picture, think up a name or title for it and write it at the bottom. (Examiners and teachers will write down the titles for children under the third grade later.)



TITLE: At The Show

TASK 2. FIGURE COMPLETION. By adding lines to the six figures below, sketch some object or design. Try to think of some object or design that no one else in the class will think of. Try to include as many different ideas as you can in your drawing. In other words, don't stop with your first idea for completing the figure; keep building on to it. Make up a title for each of your drawings and write it at the bottom of each block next to the number of the figure.



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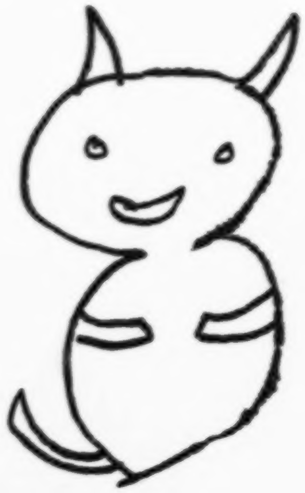

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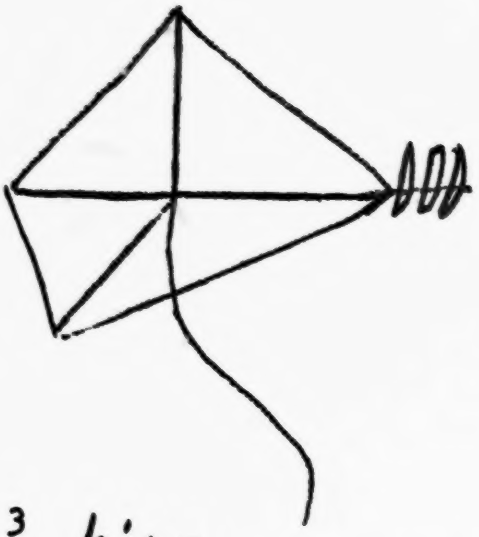

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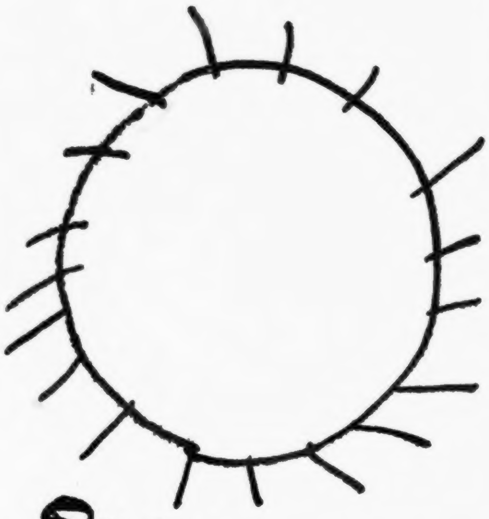
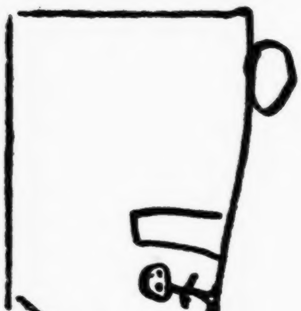
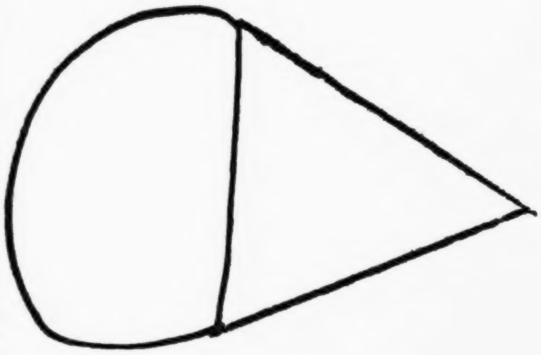


4 Sun

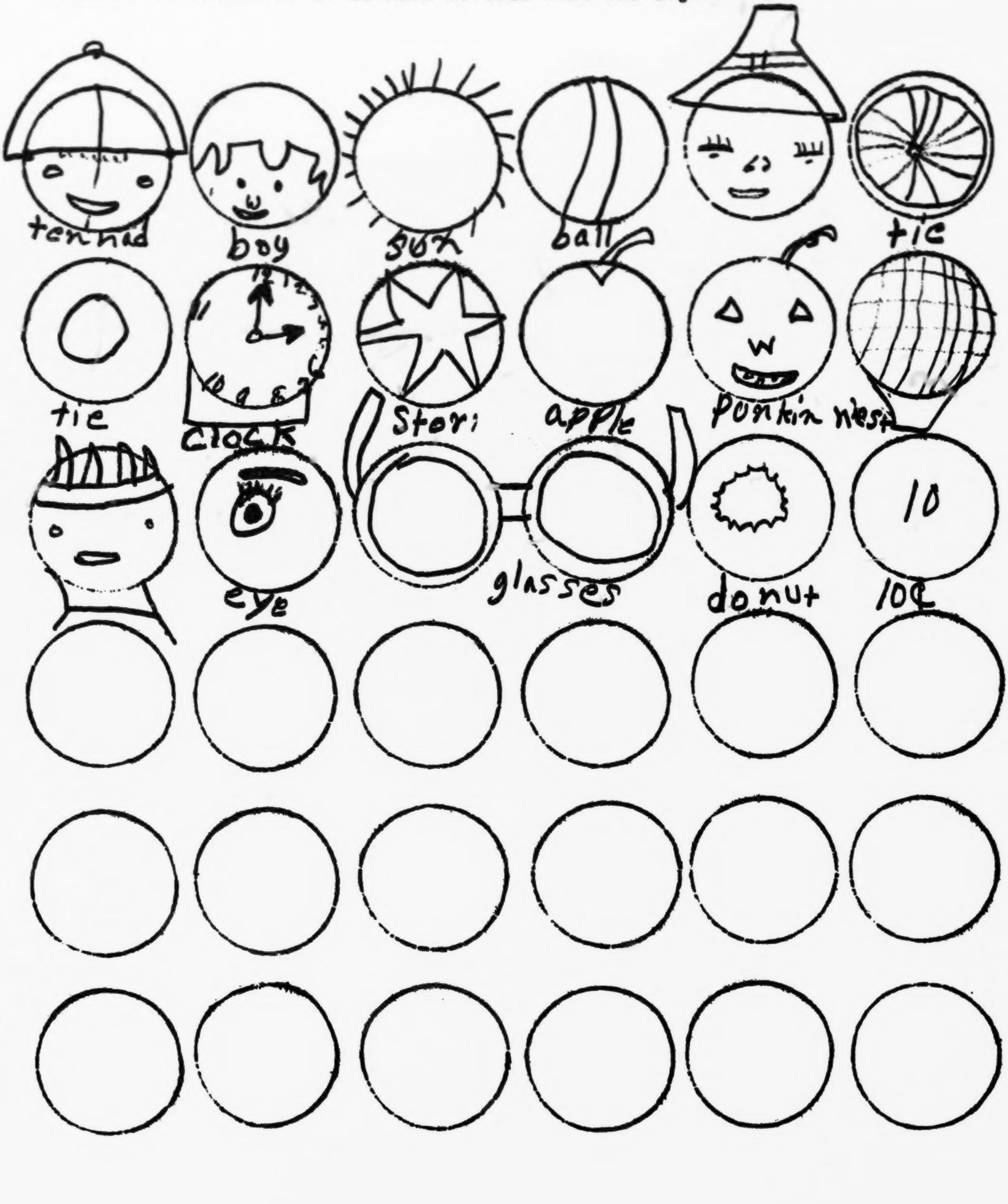


5 truck



6 snowball

TASK 3. CIRCLES. In ten minutes see how many objects you can make from the circles below. A circle should be the main part of whatever you make. With pencil or crayon add lines to the circles to complete your picture. Your lines can be inside the circle, outside the circle, or both inside and outside the circle. Try to think of things that no one else in the class will think of. Make as many things as you can and put as many ideas as you can in each one. Add names or titles if it is hard to tell what the object is.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nest
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eye
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4. Western Samoan Version

NON-VERBAL CREATIVE THINKING TASKS (Form NVA)

Igoa: Tauloa Soelu Aso: 8 1960

Vasega: vasega 2 a Faia'oga: Muagutu A'oga: Poutasi

FAATONUGA: I lenei tusi o loo i ai ni mea se tolu e te faia.

O nei mea uma o le a maua ai e oe le avanoa e faaaoga ai ou mafaufauga i nisi ala. Matou te manana'o e te mafaufau i nisi ala se tele e mafai ai ona fai nei mea uma ma faaaogā i manatu fou ma ni itu e ese lava! O manatu po o faiga matua'i 'ese e le o mafaufau i ai se isi tagata o le vasega. Ia fa'aopoopo manatu fou ma afai e te mafaufau i se mea 'ese po'o se mea manaia ia tu'u loa i le pepa.

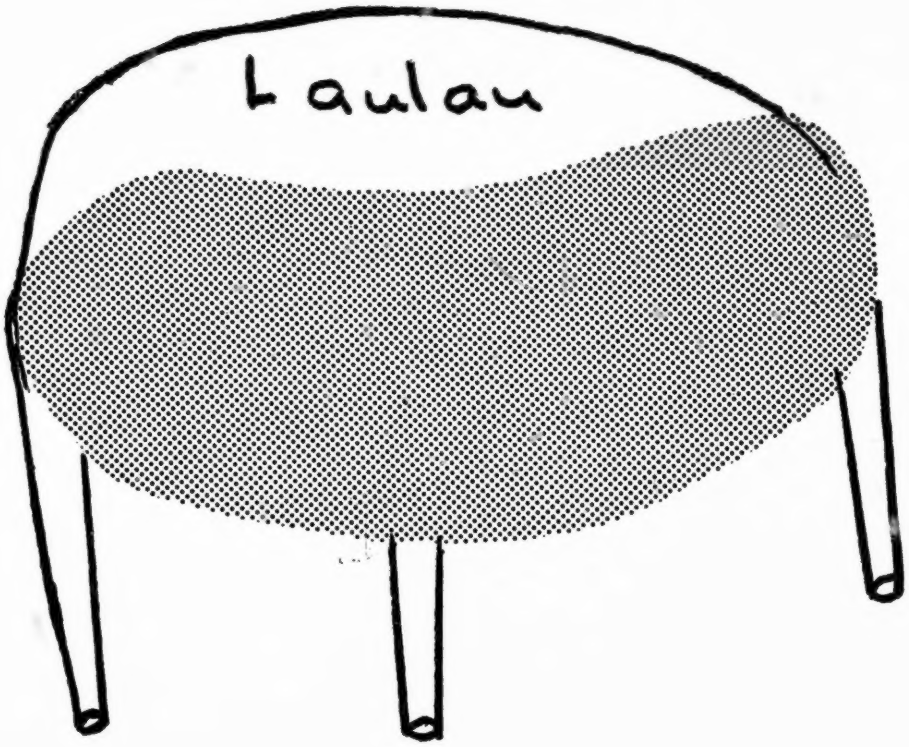
O le a faatapulaaina le taimi e mafai ai ona fai nei galuega, ia aua la e te faamaimau le taimi. Ia galue vave ma faatatau lelei. Afai o le a uma ona tusia mea uma o loo e mafaufau i ai ae ou te le'i fai atu ua uma le taimi, ia ona faatali lea se'i ou fai atu ona faatoā liliu ai lea i le isi itū o le pepa.

E le afaina i mea o loo tusia i lalo o lenei itulau. Ia faatoā susu'e lava le pepa pe a ou fai atu loa e susu'e.

****

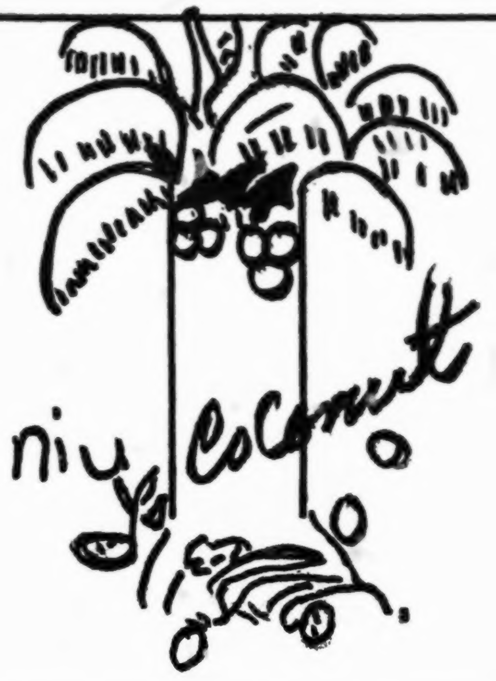
BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

VAEGA I. O GAOIOIGA E FAIA I ATA PO O PEPA E PI'O LE TIPIGA. Ua tuuina atu ia te oe se fasi pepa e pi'o le tipiga. Mafaufau i se ata po o se isi mea e mafai ona e tusia e faaaogā ai lenei pepa i sona vaega e fai ma fesoasoani i lau ata o loo tusia. Ia ave ese le fasi pepa ma faapipii i so o se mea i lalo o le pepa lenei ma faaopoopo loa i ai ni laina e tusi i se penitala po o se peni vali ata ma tusi ai le ata ua e mafaufauina. Ia taumafai ona e mafaufau ma tusi se ata e te iloa e le o mafaufau foi i ai se isi tagata o le vasega. Ia faaopoopo pea i ai mea i lau ata ma tuu i ai nisi mafaufauga lelei e te mafaia. Pe a mae'a lau ata ona tusi, mafaufau i se igoa e tatau i ai ma tusia i lalo o le pepa lenei. (O alii su'esu'e ma faia'oga o le a tusia i lalo le igoa po o le autū o le ata mo tamaiti e i lalo ifo o le vasega tolu, po'o Standard 1.)

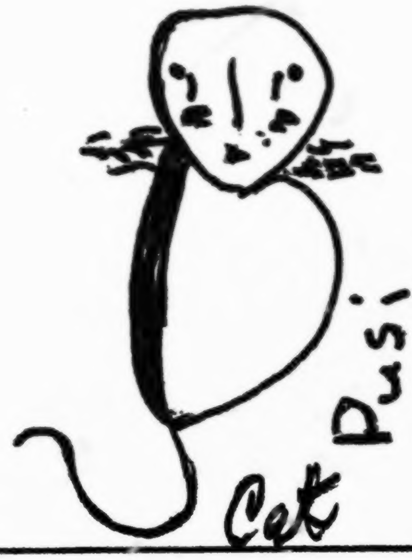


Igoa o le ata: Table

VAEGA E 2. FAAATOATOAINA O NI TUSITUSIGA O I LALO: Ia faaopoopo atu ni laina i tusitusiga e ono o loo i lalo, ma tusia ai se ata teuteu lelei. Ia taumafai ona e mafaufau i ni ata e te iloa e lē o mafaufau foi i ai se isi o le vasega. Ia taumafai ona faaaogaina ni ala eseese e fai ai le tusiga o lau ata. O lona uiga, aua ne'i e faatali pe a uma le ata o i lalo, taumafai e faaopoopo pea i ai nisi mafaufau e faatele ai. Ia e mafaufau i ni igoa ma tusia i lalo ifo lava o le ata lava ia e pito i le fuainumera o loo tusia i lalo.



1



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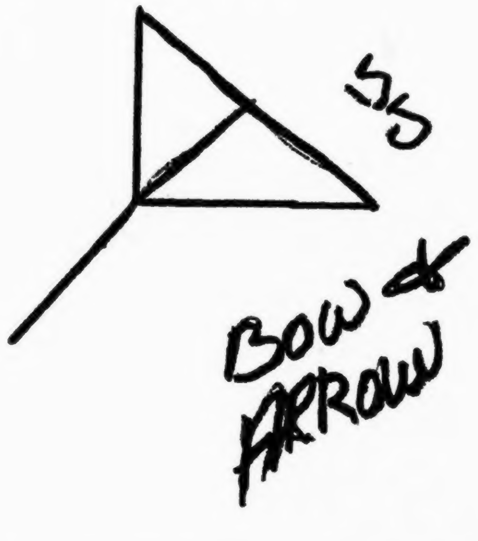

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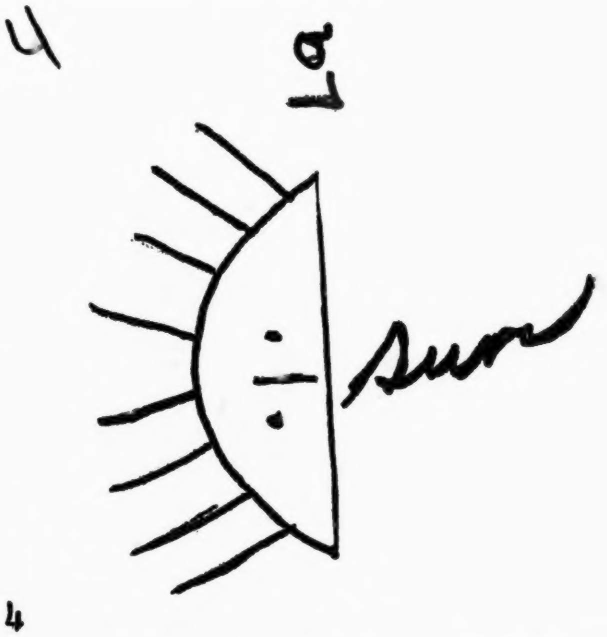

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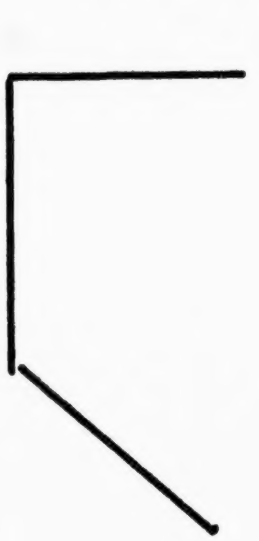

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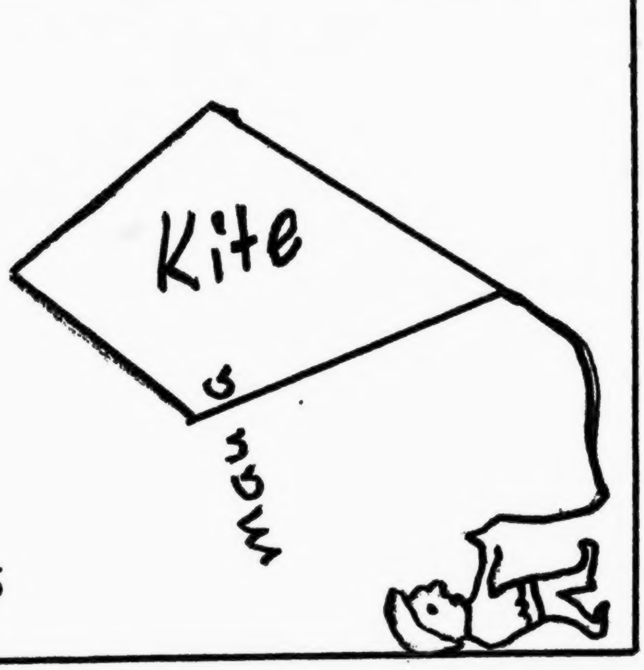
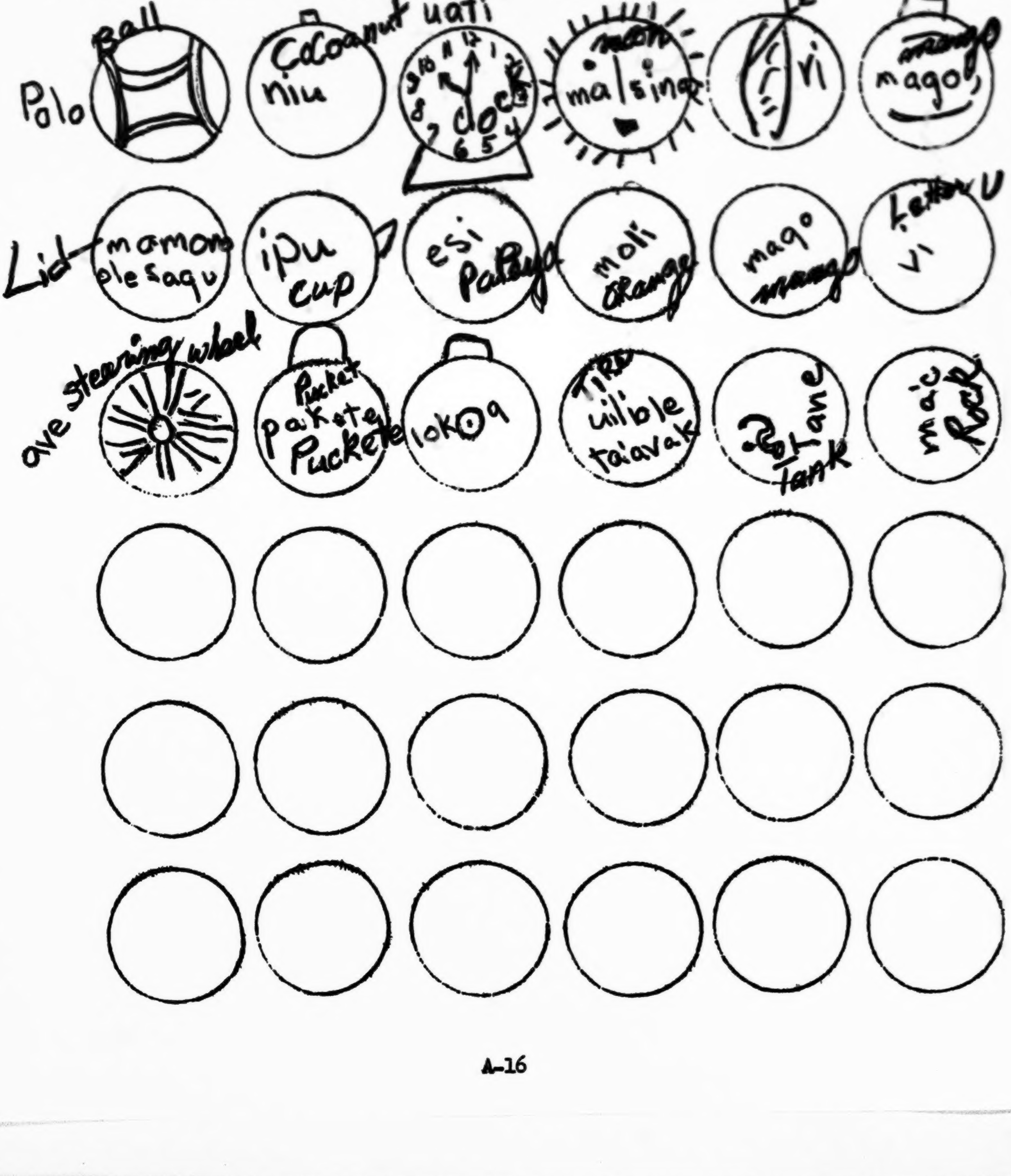


6

VAEGA E 3. O LI'O PO O LAINA FAALAPOTOPOTO. I le sefulu minute, vaai pe fia ni tusitusiga ata po o ni teuteu e mafai ona e tusia mai li'o po o laina faalapotopoto o i lalo. O le li'o o le faavae lea o lau ata. O le penitala, po o se peni vali ata e mafai ona faaopoopo atu ai nisi laina i le li'o e faaatoatoa ai lau ata. O laina e mafai ona tusi i totonu, po o fafo o le li'o, po o totonu ma fafo uma o le li'o. Ia taumafai ona mafaufau i ni ala 'ese e lē o mafaufau foi i ai se isi o le vasega. Ia taumafai ona tusi ni ata se tele ma taumafai fo'i ona tusi ni mea e tele i totonu po'o lata mai fo'i i li'o ta'itasi. Ia tusia foi igoa o lau ata o tusi pe afai o le a iloa gatā mai lona uiga.


Ball
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Papaya
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letter V
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Puckete
loko9
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taiavak
tane
tank
magic
Rock

5. German Version

Nicht-Sprachliche Aufgaben zum Schoepferischen Denken

Form NVA

Name: Michael Schikowski Datum: 27.2.61

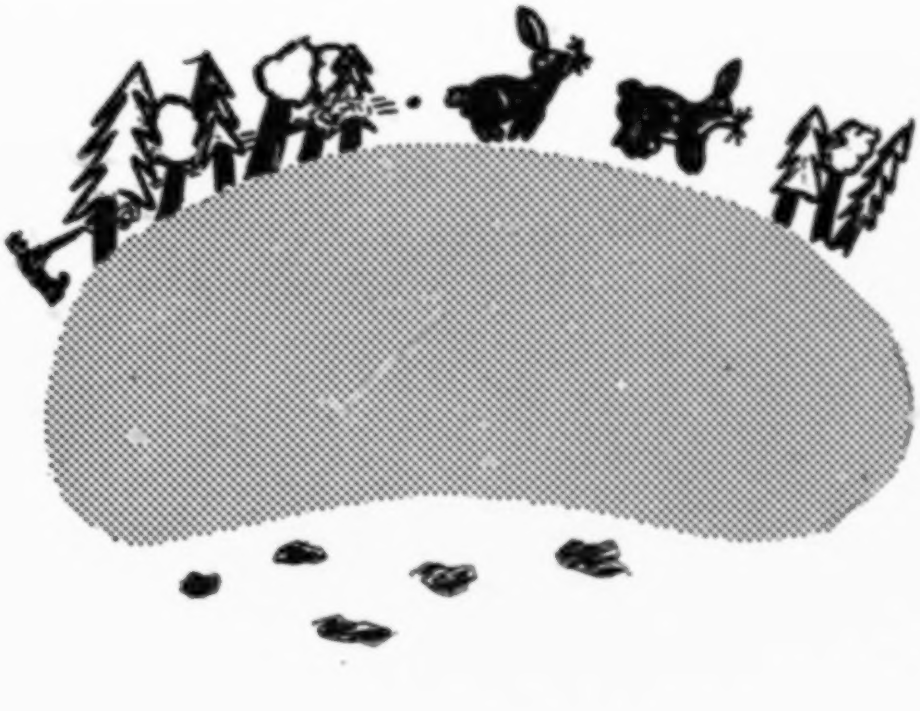
Schuljahr: 5 Klasse: 5a Lehrer(in): Tarras Schule: Gritsch 8

Einfuehrung: In diesem Heft gibt es drei interessante Dinge fuer euch zu tun. Sie geben euch Gelegenheit, eure Phantasie zu benutzen. Wir moechten, dass ihr zu jeder Aufgabe so viel Ideen wie moeglich findet. Wir moechten aber auch, dass es interessante und aussergewoehnliche Ideen sind, - Ideen, auf die vielleicht kein anderer in der Klasse kommt. Fuegt neue Ideen zu eurem ersten Einfall hinzu. Schmueckt sie aus, wo ihr koennt.

Fuer jede Aufgabe habt ihr nur eine bestimmte Zeitspanne zur Verfuegung. Vertroedelt nicht die Zeit, arbeitet schnell, aber nicht zu hastig. Wenn ihr keine Ideen mehr habt, und die Zeit ist noch nicht um, dann wartet solange, bis ich sage: umblaettern. Also erst umblaettern, wenn ich das Zeichen dazu gebe.

BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF MINNESOTA
September 1960

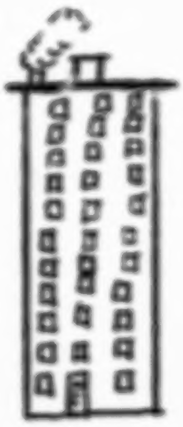
Aufgabe 1. Bildkonstruktion. Hier habt ihr ein Stueck Papier mit einer gekruemmten Form. Denkt an ein Bild oder einen Gegenstand, der diese Form als Teil enthaelt und den ihr auch zeichnen koennt. Macht das Stueck Papier ab und klebt es dort auf, wo ihr es auf dem Blatt haben wollt. Nun fuegt Linien dazu, um das Bild zu zeichnen, an das ihr gedacht habt. Versucht, euch etwas auszudenken, auf das kein anderer in der Klasse kommt. Fuegt dem Bild neue Ideen hinzu, um es so interessant wie moeglich zu machen. Benutzt Bleistifte oder Buntstifte. Wenn euer Bild fertig ist, denkt euch eine Ueberschrift dafuer aus und schreibt sie darunter.



Ueberschrift: Die Hasenjagt

Aufgabe 2. Unvollstaendige Figuren. Fuegt zu jeder dieser sechs Figuren neue Linien hinzu, so dass daraus Gegenstaende oder Muster werden. Malt etwas, auf das vielleicht kein anderer in der Klasse kommt. Dann fuegt noch mehr Dinge hinzu, die das Bild interessanter machen. Gebt nicht gleich nach dem ersten besten Einfall auf. Sucht wieder Ueberschriften fuer eure Bilder und schreibt sie darunter.

3
9



1 Das Hochhaus [redacted]

2
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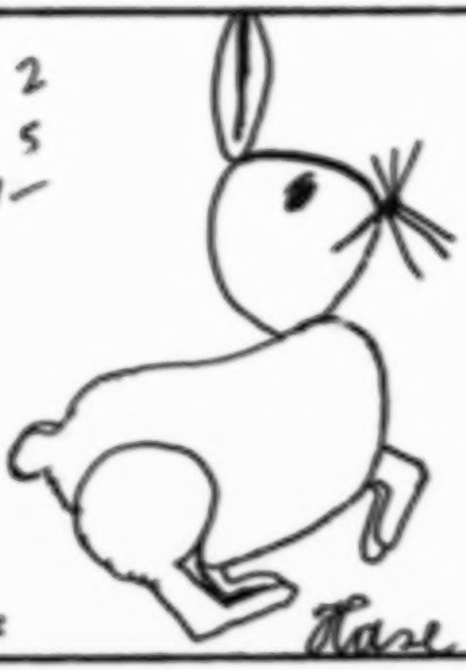
1



2 Hase

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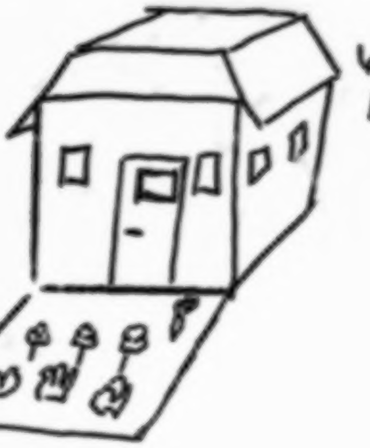
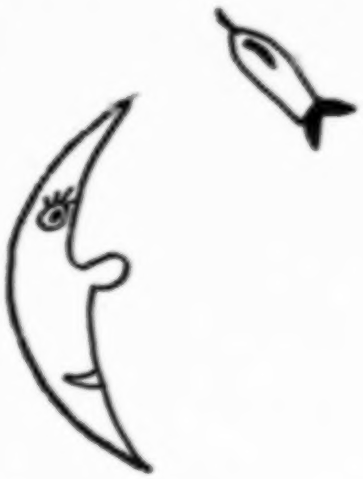
10



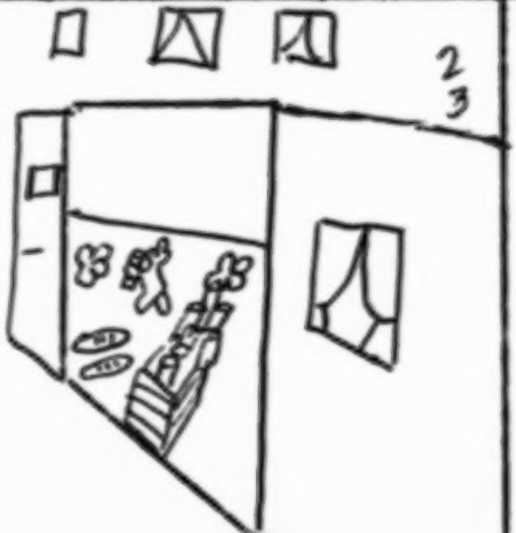
3 Das Wochenendhaus

5
A:5
B:4



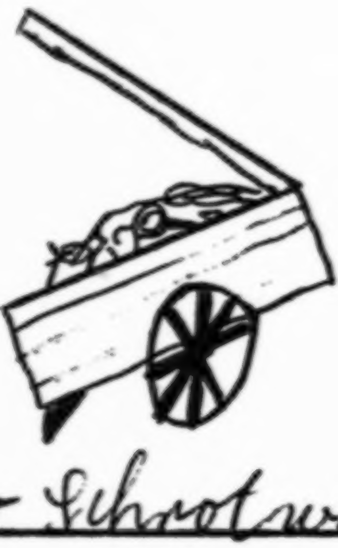
4 Im Weltall

A:18
B:2
2
3



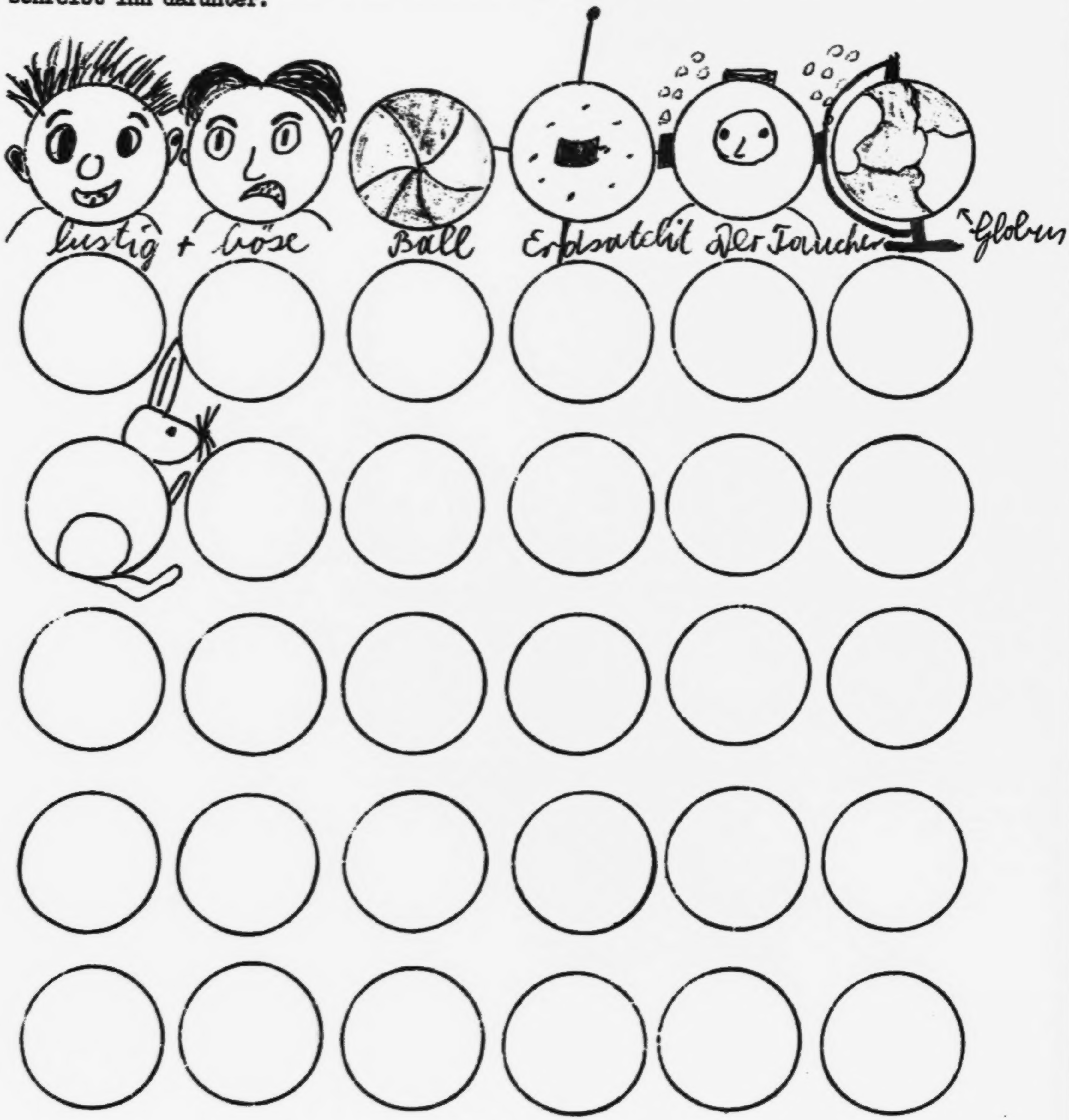
5 Das Schaufenster

4
6
A:7



6 Der Schrotwagen

Aufgabe 3. Das Kreisspiel. Das hier nennen wir das Kreisspiel. In den naechsten zehn Minuten seht zu, wieviele Gegenstaende ihr malen koennt, die den Kreis als Hauptteil haben. Fuegt Linien zu dem Kreis, um das Bild zu vervollstaendigen. Die Linien koennen ausserhalb des Kreises sein, aber auch innerhalb oder ausserhalb und innerhalb zugleich. Denkt euch wieder ungewoehnliche Dinge aus. Falls eure Ideen nicht leicht zu erkennen sind, erfindet dazu einen Namen und schreibt ihn darunter.



6. Norwegian Version

SKJEMA VA

Namn: Sigrid Teigen Dato: 9-1-62

Fødd: 9 feb. Klasse: 3. Skole: loar Lærar: Kari Sæter.

Kva slags arbeid ønskjer du deg når du blir vaksen? Sykesyster

Nurse

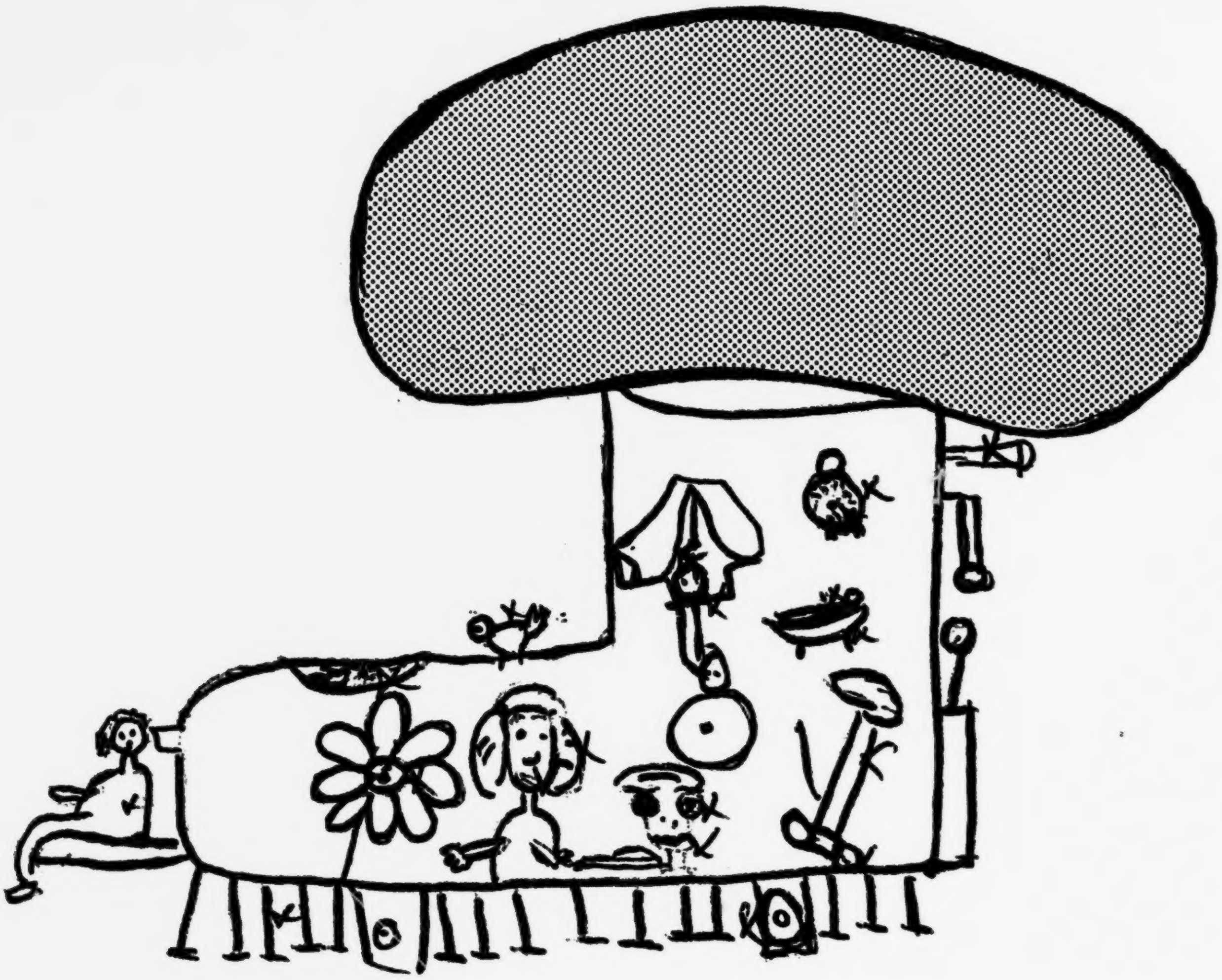
RETTLEIING: I dei oppgåvene du får i dette vesle heftet, skal du få syna kor flink du er til å bruka fantasien, til å vera påhitten og oppfinnsam. Det er ikkje noko "rett" svar på desse oppgåvene. Vi vil berre at du skal koma med så mange idéar som mogleg, finna på så mange ting som råd er. Prøv om du kan finna på noko sjeldant, noko morosamt og interessant, gode idéar, noko som du trur ingen andre i klassen vil koma på.
Du får seks oppgåver, og du får ikkje så lang tid til kvar, så prøv om du kan nytta tida godt. Arbeid snøgt, men ikkje så snøgt at du må slurve.
Dersom du ikkje kan koma på meir og du enno har tid att, vent då til eg seier frå at du kan gå vidare til neste oppgåve.
Bry deg ikkje om det som står skrive under her. Bla ikkje om før eg seier frå.

++

BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

OPPGAVE 1. BILLED-KONSTRUKSJON. (BUET FIGUR).

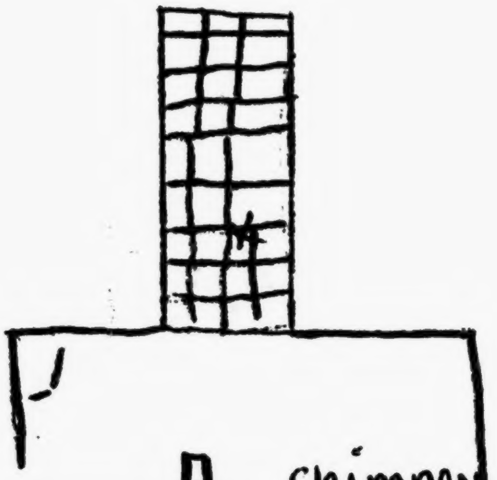
Her har du fått en papirlapp som ser ut som en buet figur. Tenk deg at du skal lage en ting på dette arket der du skal bruke denne figuren som en del av den tingen du vil lage. Løft opp figuren og kleb den fast hvor det passer på arket for å lage det bildet du har bestemt deg for. Føy til streker med blyanten din når du skal lage det bildet du tenker på. Prøv om du kan finne på noe som du tror ingen andre i klassen tegner. Prøv om du kan bygge videre og videre på tegningen din, slik at du kan få med så mange ting som mulig. Bruk vanlig blyant når du tegner. Når du er ferdig med bildet ditt, prøver du å lage et passende navn eller en tittel til det. Skriv navnet på bildet nederst på dette arket.



Navn på bildet: Modernebil

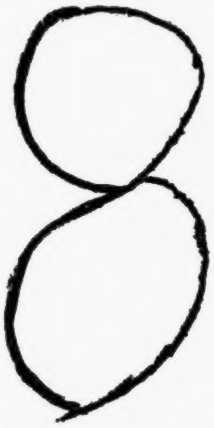
OPPGAVE 2. UFULLSTENDIGE FIGURER.

Nå skal du prøve å komme på bilder som du kan lage av disse ufullstendige figurene. Føy til streker på de seks figurene på denne siden slik at du får fram bilder av ting eller landskap. Prøv om du kan finne på noe som du tror ingen andre i klassen kommer på. Føy også til andre ting du kan komme på som kan gjøre bildet enda mer interessant. Stopp ikke med det du først tenkte på. Få med andre ting som passer sammen med det du først tenkte på. Prøv om du kan komme på et godt navn eller en tittel til hvert bilde og skriv under.



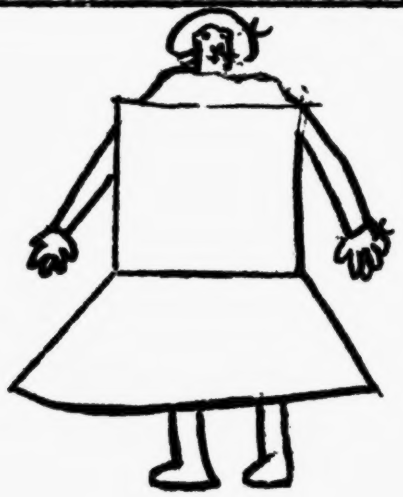
1

Pipe. chimney



2

Åttetall. Nr. 8.



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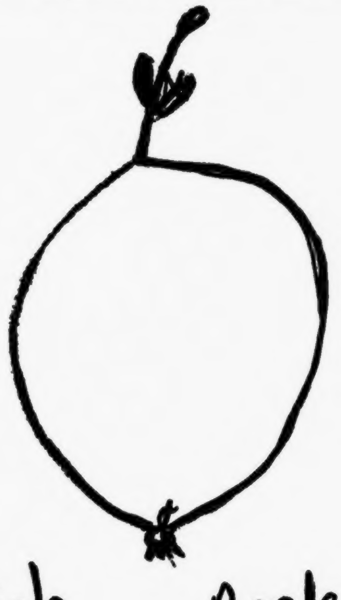
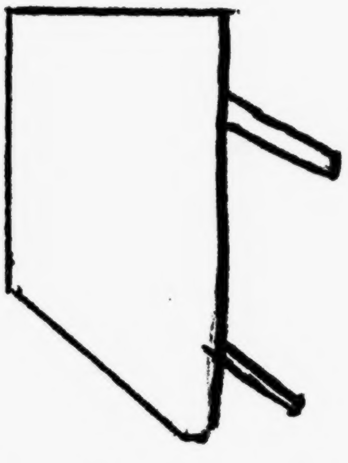
Kjole. Dress



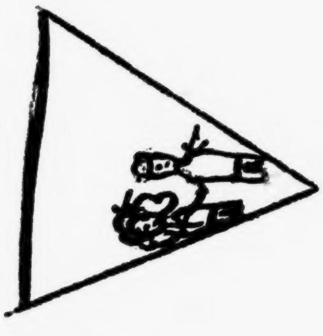
4

Eple. Apple



5

Bord. Table



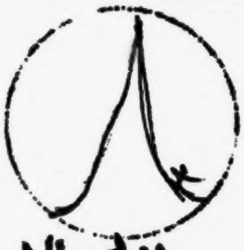
Road sign

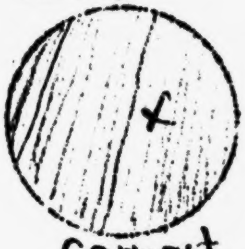
6

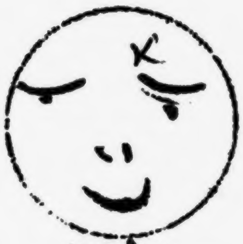
Veiskilt.

OPPGAVE 3. SIRKLER.

Denne oppgaven kaller vi sirkel-leken. På 10 minutter skal du prøve hvor mange ting du kan tegne der sirkelen er med som viktigste del. Føy streker til sirkelen med blyanten din så vi kan se hva slags ting du tenker på. Du kan føye til streker på innsiden av sirkelen, på utsiden, og både på innsiden og på utsiden av sirkelen. Prøv om du kan finne på noe sjeldent, noe uvanlig og interessant og prøv å få med så mange ting som du bare kan komme på. Med andre ord: Bygg videre på det du først tenkte på ved å føye til enda flere streker. Hvis du tror det kan bli vanskelig for andre å skjønne hva tegningene dine skal forestille, skriv da et navn eller en tittel under.


Vindu.


garnnøste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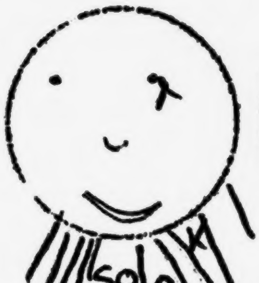
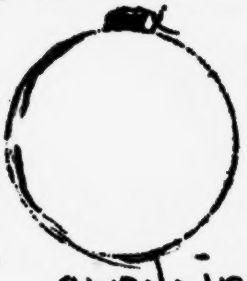
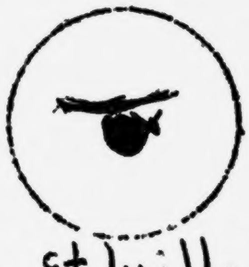
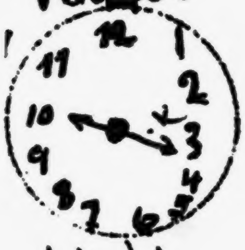

sola


appelsin.


Et brilleglass.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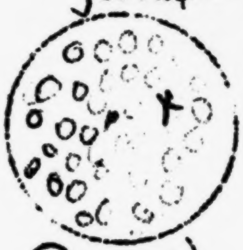
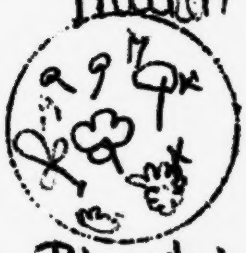
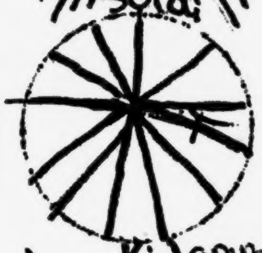
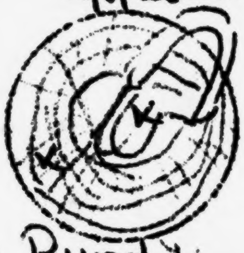

Parasol.


Blomsterbed.


Ki lampe


Rund.Korg.

14 ELAB
10 FLEK
11 FLU

7. Indian (New Delhi) Version

MINNESOTA TESTS OF CREATIVE THINKING

(FORM NVA)

तिथि..............................

नाम...लिंग ....कक्षा.............................

स्कूल...आयु ....

आप कितने भाई बहन हैं ?..भाई और बहन...

आपके पिता किस प्रकार का कार्य करते हैं ?...

आपकी माता किस प्रकार का कार्य करती हैं ?...

आप बड़े होकर किस प्रकार का कार्य करना चाहेंगे ?...

निर्देश :—*इस पुस्तिका में आपको बहुत से रुचिकर कार्य करने हैं। इनसे आपको अपनी कल्पना के प्रयोग करने का तथा नए विचारों को प्रकट करने का अवसर मिलेगा। साधारणतया आपके उत्तरों को "गलत" या "सही" मानकर निर्णय नहीं किया जाएगा। हमारी इच्छा है कि आप यथा सम्भव अधिक से अधिक कल्पनाएँ और विचार प्रकट करें और यह कल्पनाएँ जितनी अनोखी (unusual) रुचिपूर्ण (interesting) और चतुराई पूर्ण (clever ideas) हो सकें उतना ही अच्छा है। ऐसी कल्पना करें जो आपकी कक्षा के अन्य लोग न कर पाएं।

*प्रत्येक कार्य के लिए समय की सीमा निश्चित है। अतः आप समय नष्ट न करें। शीघ्रता पूर्वक काम कीजिए।

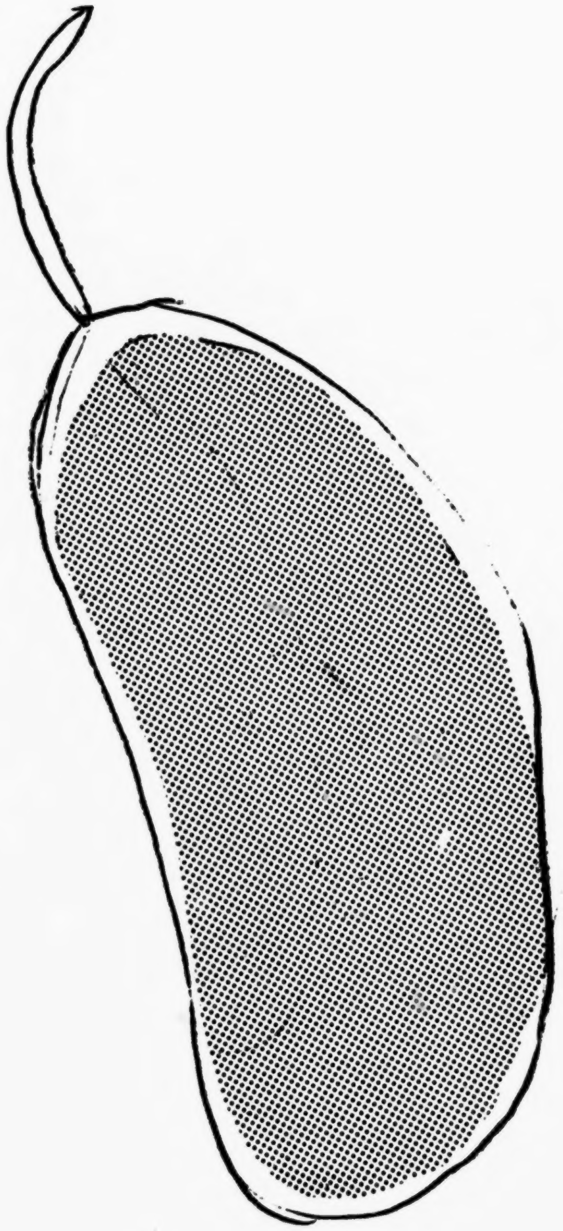
*निश्चित समय के पहले ही यदि आप अपना एक अभ्यास समाप्त करते हैं तो भी आप दूसरा पृष्ठ न देखें जब तक कि आपको ऐसा करने के लिए आदेश न दिया जाए।

*इस पृष्ठ के निम्न भाग की ओर आप बिल्कुल ध्यान न दें। जब मैं संकेत दूँ तो आप दूसरा पृष्ठ उलटें।

पहला-अभ्यास

चित्र-निर्माण (टेढ़ी-मेढ़ी) Picture Construction (Curved shape)

आपको एक वक्राकार (टेढ़ा-मेढ़ा) कागज़ का टुकड़ा दिया गया है। एक ऐसे चित्र अथवा वस्तु की कल्पना करें जिसे कि इस कागज़ को एक हिस्सा बनाते हुए आप खींच सकें। इसके बाद टेढ़े-मेढ़े कागज़ के टुकड़े को उठाकर इस कागज़ को कहीं भी चिपका दें और फिर पेंसिल की सहायता से चित्र बनावें। कोई ऐसी वस्तु बनाने की कोशिश करें—जो इस कक्षा में किसी के ध्यान में न आए। अपने चित्र को अधिक से अधिक मनोरंजक विचारों से पूर्ण करने का प्रयास करते हुए बढ़ाते चले जायें चित्र को पूरा करने के बाद उसका एक शीर्षक (Title) सोचें और चित्र के नीचे लिख दें।



शीर्षक (Title) لوکی یا کدو

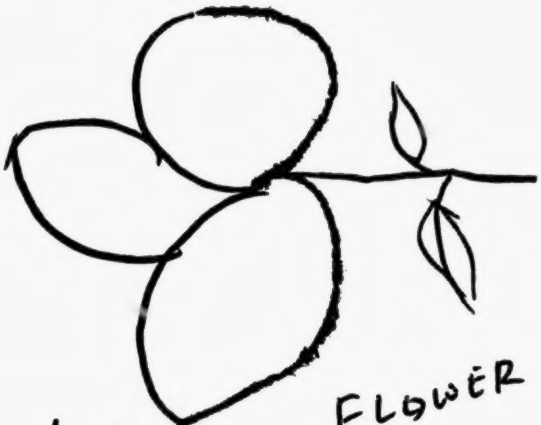
दूसरा-अभ्यास

चित्र-पूर्ति (Figure Completion)

निम्नांकित ६ चित्रों में और रेखाएँ जोड़ कर किसी वस्तु या डिजाइन को चित्रित करें। किसी ऐसी वस्तु या डिजाइन की कल्पना करें जो आपकी कक्षा में और कोई भी न कर सके। अपने चित्र में अधिक से अधिक विचारों के समावेश (include) करने का प्रयास करें। अर्थात आप केवल अपनी पहली कल्पना पर ही आश्रित न रहें बल्कि चित्र-निर्माण में नवीनतम् विचारों का समावेश करते चले जायें। अपने प्रत्येक चित्र के लिए एक शीर्षक (Title) चुनें और उसे प्रत्येक चित्र के नीचे छपे क्रमांक की बगल में लिख दें।

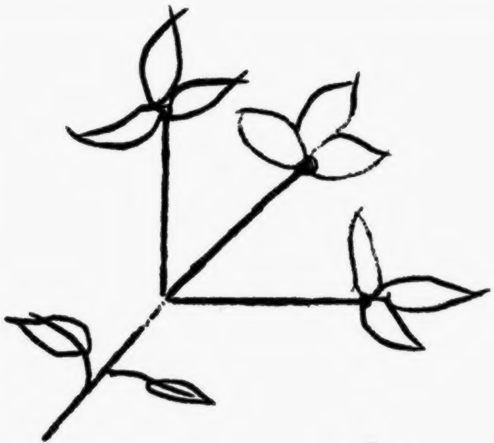
BAT

1 کرکٹ کا بلا



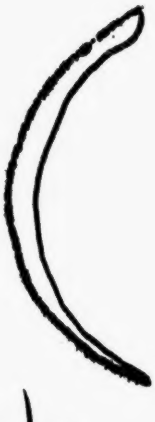
FLOWER

2 پھول



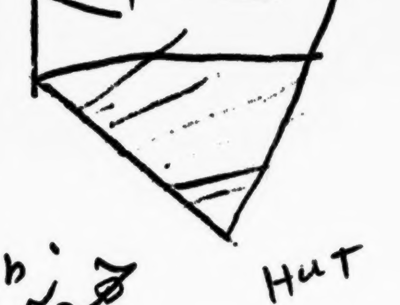
FLOWER

3



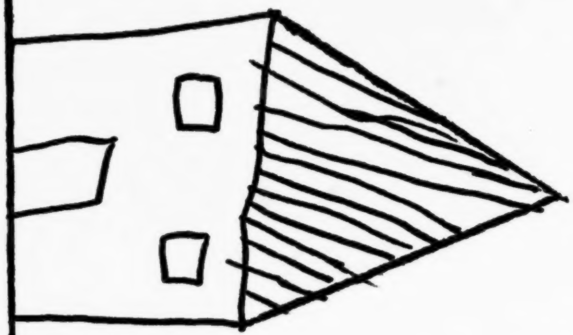
MOON

4 چاند



HUT

5 جھونپڑی



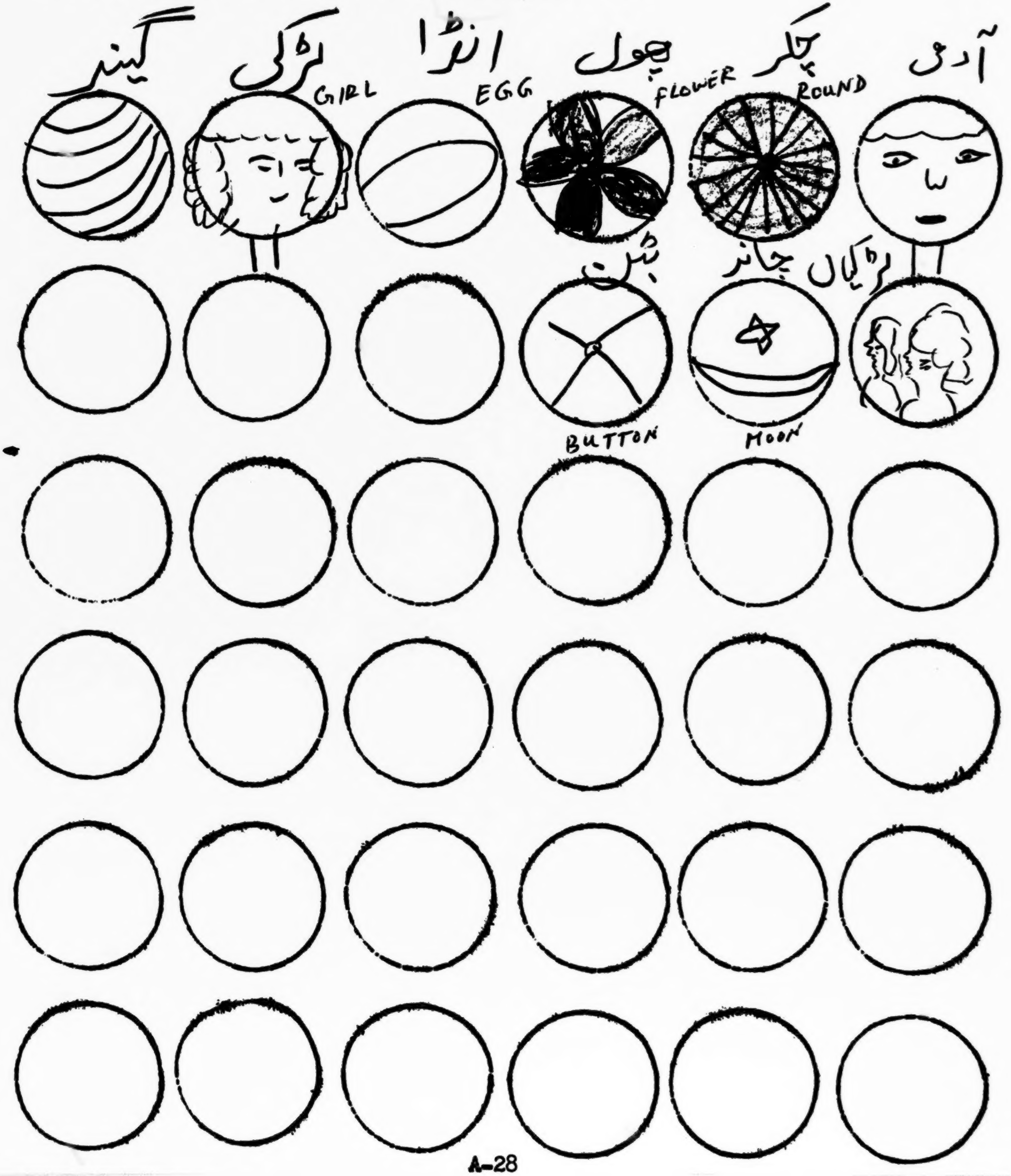
HUT

6 جھونپڑی

तीसरा अभ्यास

वृत (Circles)

निम्नांकित वृतों (Circles) की सहायता से आप कितने चित्रों का निर्माण कर सकते हैं, यह दस मिनट में करके देखिए। आप जो कुछ भी क्यों न बनाएँ, एक वृत आपकी रचना का प्रमुख भाग होना चाहिए। पेंसिल से वृतों में रेखाएँ जोड़ कर आप अपना मन चाहा चित्र पूरा करें। आपकी रेखाएँ वृत्त के बाहर, भीतर अथवा बाहर और भीतर भी हो सकती हैं। ऐसी वस्तु या चित्र की कल्पना करें जो आपकी कक्षा का कोई अन्य छात्र न कर सके। प्रत्येक चित्र में आप अधिक से अधिक वस्तुओं और अधिकतम विचारों का समावेश कर सकते हैं। चित्र के नीचे उनका शीर्षक लिखें, यदि चित्र से ही उन वस्तु की पहचान न की जा सके।


گیند
لڑکی
GIRL
انڈا
EGG
پھول
FLOWER
چکر
ROUND
آدمی
بٹن
BUTTON
چاند
MOON
لڑکیاں

APPENDIX B

Sample Translations and Protocols of Verbal Tests of Creative Thinking Ability

1. U.S.A. Sample (Twin Cities)
2. U.S.A. Segregated Negro School
3. Western Australia Group
4. Western Samoa Group
5. West German (Berlin) Group
6. Norwegian Group
7. Indian (New Delhi) Group

1. U. S. A. Sample

VERBAL CREATIVE THINKING TASKS

FORM VA

Name: Madeline Liebling Date: Nov 21, 1960

Grade: 4 Teacher: Mr. Myers School: U.E.S.

What kind of work do you want to do when you grow up?

Nurse or secretary

INTRODUCTION: The tasks in this booklet are a test of your ability to use your imagination, to think of new ideas. There are no "right" answers in the usual sense. We want you to think of as many ideas as you can. Try to think of unusual, interesting, and clever ideas -- something which no one else in the class will think of.

You will be given six tasks to do and you will be timed on each one, so do not waste time. Work as rapidly as you can with comfort. If you run out of ideas before time is called, wait until instructions are given before going on to the next task.

Do not pay any attention to the rest of this page, but do not turn to the next page until told to do so.

BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

TASK 1. ASK AND GUESS. The first three tasks will be based on a picture which will be projected on the screen (or displayed at the front of the room). The first task will give you a chance to show how good you are at asking questions. In the spaces below write down all of the questions you can think of about the things you see in the picture. Ask the questions you would need to know to understand what is happening. Do not ask questions which can be answered just by looking at the picture.

1. Why does the girl have a doll.
2. Why is the hay yellow.
3. Why is the grass green.
4. Why is the sky blue.
5. Why is a cloud passing the sun
6. Why does the doll have a red dress
7. Why is the boys hat red.
8. Why does the boy have 5 toes
9. Why is there a fence
10. What is the dolls name.
11. Why isn't there a clock in the ~~[illegible]~~ Picture
12. Why is the boy sleeping
13. ____________________
14. ____________________
15. ____________________
16. ____________________
17. ____________________
18. ____________________
19. ____________________
20. ____________________
21. ____________________
22. ____________________
23. ____________________
24. ____________________
25. ____________________

TASK 2. GUESS CAUSES. In the spaces below, list as many possible things as you can which might have caused the action shown in the picture. You may use things that might have happened just before the event in the picture, or something that happened a long time ago that had an influence on the present event. Make as many guesses as you can. Don't be afraid to guess.

1. The doll got a new dress.
2. The boy was tired.
3. The boy got a new hat
4. They had a blue horn.
5. The hay was cut.
6. The lost his shoes.
7. The fence was just built.
8. The girl got a new dress.
9. Yesterday was the girl's birthday.
10. The girl put shoes on.
11. The sheep ran away.
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TASK 3. GUESS CONSEQUENCES. In the spaces below, list as many possibilities as you can of what might happen as a result of what is happening in the picture. You may use things that might happen right afterwards or things that might happen as a result long afterwards in the future. Make as many guesses as you can. Don't be afraid to guess.

1. The boy will wake up.
2. The sheep will run away.
3. The girl will drop her doll.
4. The boy will find his shoes.
5. The sun will set.
6. The noon will rise
7. The children will go home.
8. The boy will grow a beard.
9. The hay will be stored away.
10. It will rain
11. The boy will fall.
12. The boy will sneeze.
13. The girl will run away.
14. The girl will buy a new dress.
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TASK 4. PRODUCT IMPROVEMENT. List below the cleverest, most interesting, and most unusual ways you can think of for changing the toy dog you will be shown so that children would have more fun playing with it.

1. You can get a red ribbon.
2. You can paint hin blue.
3. You can put a long tail on him.
4. You can put in blue eyes.
5. You can put a dress on hin.
6. You can put a new hat on him.
7. You can make him so he will bend many ways.
8. You can put shoes on hin.
9. You can make hin open his mouth
10. You can paint his ears green.
11. You can pin a medal to him.
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TASK 5. UNUSUAL USES. List below the cleverest, most interesting, and most unusual uses you can think of for this toy dog other than as a plaything.

1. Use it as a pin cusjon.
2. Use it to sorry secret messages.
3. Use it for a magic show.
4. Use it as an advertizement.
5. Use it for fun.
6. Use it as a bomb.
7. Use it as a multiplication table.
8. Use it as a salt or pepper shaker.
9. Use it as a sugar bowl.
10. Use it as a decoration.
11. Use it as a wastepaper basket.
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14. 11-8-28
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TASK 6. CONSEQUENCES. In the spaces below list all of the possible consequences you can think of for each of the improbable events or conditions listed below.

A. What would happen if men could become invisible at will?

1. We could help at war.
2. It would be fun.
3. We could play trraks
4.
5.
6.
7.
8.

B. What would happen if a hole could be bored through the earth?

1. We would learn about science.
2. We could reach China
3. We would get burned by lava.
4.
5.
6.
7.
8.

C. What would happen if the language of birds and animals could be understood by men?

1. We could learn more about them.
2. We could prove things
3. We could make friends wthe birds.
4.
5.
6.
7.
8.

2. U. S. A. Segregated Negro School

VERBAL CREATIVE THINKING TASKS

FORM VA

Name: Richard Cooper Date: 11-3-60

Grade: 5 Teacher: Mrs Arnold School Harrisburg

What kind of work do you want to do when you grow up? CowBoy

Jan. 29, 1950

INTRODUCTION: The tasks in this booklet are a test of your ability to use your imagination, to think of new ideas. There are no "right" answers in the usual sense. We want you to think of as many ideas as you can. Try to think of unusual, interesting, and clever ideas -- something which no one else in the class will think of.

You will be given six tasks to do and you will be timed on each one, so do not waste time. Work as rapidly as you can with comfort. If you run out of ideas before time is called, wait until instructions are given before going on to the next task.

Do not pay any attention to the rest of this page, but do not turn to the next page until told to do so!

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September 1960

TASK 1. ASK AND GUESS. The first three tasks will be based on a picture which will be projected on the screen (or displayed at the front of the room). The first task will give you a chance to show how good you are at asking questions. In the spaces below write down all of the questions you can think of about the things you see in the picture. Ask the questions you would need to know to understand what is happening. Do not ask questions which can be answered just by looking at the picture.

1. Who trow the boy Close behine?
2. How Come the boy trying to through the Cat in the?
3. How Come the other boy just standing up there?
4. The Girl is Sad?
5. The boy tore the patch
6.
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TASK 2. GUESS CAUSES. In the spaces below, list as many possible things as you can which might have caused the action shown in the picture. You may use things that might have happened just before the event in the picture, or something that happened a long time ago that had an influence on the present event. Make as many guesses as you can. Don't be afraid to guess.

1. The boy And the Cat Much got in a fight with the boy.
2. And that the region boy and the Cat Got the fighting
3. The Cat Much be the girl Cat
4. And that the region the boy through the Cat in the hall
5. But the girl Much to Sick the Cat on the boy
6. And the other Much to told her to Sick him on.
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TASK 3. GUESS CONSEQUENCES. In the spaces below, list as many possibilities as you can of what might happen as a result of what is happening in the picture. You may use things that might happen right afterwards or things that might happen as a result long afterwards in the future. Make as many guesses as you can. Don't be afraid to guess.

1. He might get beat up.
2. He might have bad luck when he go to bed tonight
3. He Might Get a whipping when he go home
4. He might fall in the Well.
5. He might die to night in the bed.
6. His brother might through him in the Well tonight.
7. But all of the chicken might
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TASK 4. PRODUCT IMPROVEMENT. List below the cleverest, most interesting, and most unusual ways you can think of for changing the toy dog you will be shown so that children would have more fun playing with it.

1. you Can Wine him up.
2. Evry time he stop Wine him up
3. After you get through let him unde Windin.
4. If you Want to play with him Wine him up.
5. [illegible] he get Wind him off And you Can Wine him up.
6. you Can Make him play With you When you Wine him up.
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TASK 5. UNUSUAL USES. List below the cleverest, most interesting, and most unusual uses you can think of for this toy dog other than as a plaything.

1. you Make a real dog out of him 2
2. you Can Stick pins in him too 2
3. if you [illegible] sit on him. 3
4. you Can let him sleep With you 4
5. you Can let him sleep on the arm of the Chair 0
6. you Can throw him on the floor and he [illegible] 4
7. you Can sleep [illegible] him And he Want come up 4
8. you Can sit on him And he Want come up 0
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TASK 6. CONSEQUENCES. In the spaces below list all of the possible consequences you can think of for each of the improbable events or conditions listed below.

A. What would happen if men could become invisible at will?

1. Som Men Turn you in invisible -
2. you Could be blind And Can't see -
3. Som time you Could smart of your Eyes 2
4.
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8.

B. What would happen if a hole could be bored through the earth?

1. He would not be on the earth 2
2. you would be on the earth you would have
3.
4.
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8.

C. What would happen if the language of birds and animals could be understood by men?

1. you would get kill 2
2. A lion Could kill you if you don't understand language 4
3.
4.
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8.

3. **Australian Sample**

VERBAL CREATIVE THINKING TASKS

FORM VA

Name: Jenny Mitchell Date: 25-11-60

Grade: 4A Teacher: Mr Buxallen School NARROGIN

What kind of work do you want to do when you grow up? NURSE OR Teacher

---

INTRODUCTION: The tasks in this booklet are a test of your ability to use your imagination, to think of new ideas. There are no "right" answers in the usual sense. We want you to think of as many ideas as you can. Try to think of unusual, interesting, and clever ideas -- something which no one else in the class will think of.

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September 1960

TASK 1. ASK AND GUESS. The first three tasks will be based on a picture which will be projected on the screen (or displayed at the front of the room). The first task will give you a chance to show how good you are at asking questions. In the spaces below write down all of the questions you can think of about the things you see in the picture. Ask the questions you would need to know to understand what is happening. Do not ask questions which can be answered just by looking at the picture.

1. ✓ Why was pussy put in the well
2. ✓ Why is everyone staring
3. ✓ Why is there e a Bird on the well
4. ✓ Is There any Fish in the well
5. ✓ Why does the Little Boy have a patch in his pants
6. ✓ Why are the Fowls in that Field where pussy is.
7. ✓ Why is the well made of Brick
8. ✓ Was there many flowers there.
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TASK 2. GUESS CAUSES. In the spaces below, list as many possible things as you can which might have caused the action shown in the picture. You may use things that might have happened just before the event in the picture, or something that happened a long time ago that had an influence on the present event. Make as many guesses as you can. Don't be afraid to guess.

✓ 1. Pussy scrathed the little boy.
✓ 2. The bird was there to see pussy drowned
✓ 3. The hens were glad to see pussy go
✓ 4. The little boy had a hatch because of a rooster
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TASK 3. GUESS CONSEQUENCES. In the spaces below, list as many possibilities as you can of what might happen as a result of what is happening in the picture. You may use things that might happen right afterwards or things that might happen as a result long afterwards in the future. Make as many guesses as you can. Don't be afraid to guess.

1. ✓ When the lady went home had to go to bed
2. ✓ Another boy came and took pussy out
3. ✓ The hens will come and peck the food
4. ✓ The bird will sing
5. ✓ Poor old pussy had togo to bed
6. ✓ The little boy was pushed in the well
7. ✓ Pussy soon forgot about the water.
8. In the tree the birds were
9. singing.
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Unusual Uses

TASK 4. PRODUCT IMPROVEMENT. → Error all over List below the cleverest, most interesting, and most unusual ways you can think of for changing the toy dog you will be shown so that children would have more fun playing with it.

1. ✓ Door stop (wooden)
2. ✓ China ornament.
3. ✓ In machine drawer as pin holder.
4. Needle case
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Product Improvement

TASK 5. UNUSUAL USES. List below the cleverest, most interesting, and most unusual uses you can think of for this toy dog other than as a plaything.

1. Nothing around neck. [illegible] 4
2. Tongue to stay in. [illegible] 0
3. Feet all flat on ground — 2
4. Make his tail longer. [illegible] 1
5. Ears to be shortened [illegible] 0
6. Black striped chest. [illegible] 4
7. Red eye centres — 4
8. Make him blue — 0
9. Red patches on head. — 4
10. Make his ears brown 0
11. " " tail " — 4
12. Nose to be pale pink — 1
13. Make his head firmer. Q – 4
14.
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4. Western Samoa Version

VERBAL CREATIVE THINKING TASKS

(Form VA)

Igoa: Sani Aso: 7.11.60

Vasega: S3 Faia'oga: Tofu A'oga: Safiatia

Po o le ā le ituaiga galuega e te mana'o i ai e te faia pe a e matua? Faiaoga doctor

---

FA'ATONUGA: O vaega eseese i totonu o lenei tusi o ni su'esu'ega ia e mafai ai ona faaaogā ou manatunatuga, ma ni mafaufauga i nisi ala fou. Matou te manaomia e te mafaufau i manatu fou e tele e tatau ai ona faaaogā i ai. Taumafai e mafaufau i ni ala fou e ese mai ai, logoleleia, ma mafaufauga poto e tatau ai--se mea e te iloa e lē o mafaufau lava i ai se isi tagata o le vasega.

O le a tuuina atu ni vaega se ono e fai, ma o le a le umi le taimi e tali ai vaega taitasi, ia aua la e te faamaimau taimi. Ia faia lenei galuega ia vave ma tatau ai. Afai o le a uma ou mafaufauga ma tusia i lalo ae le'i uma le taimi na tuuina atu, ia e faatali e tusa ai ma faatonuga e tuuina atu, ae le'i amataina ia isi vaega taitasi.

Aua e te aiā po o le popole i mea o loo totoe i lalo o lenei pepa, ma aua ne'i su'eina i le isi itulau vaganā ai ua faatonu atu oe.

****

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University of Minnesota
September 1960

VAEGA I. FESILI MA MATE. O vaega muamua e tolu o le a faia e uiga o se ata o le a faaalia i luma o le potu (vasega). O le vaega muamua o le a tuuina atu ai le avanoa ia te oe e faaali ai lou atamai e tusa ai ma le tuuina atu o fesili. I laina avanoa o i lalo ia tusi ai uma lava ia fesili ua e mafaufau i ai e tusa ma mea o loo e vaai i ai i le ata. Ia tusia ni fesili ua e iloa o le a maua ai sou malamalamaga i mea e tutupu mai ai e tusa ai ma le ata o faaalia. 'Aua ne'i tusia ni fesili e te iloa e faafaigofie ona tali atu i ai i le na o le vaai (tilotilo) i le ata.

1. Aiseā ua pu ai le ofuvae ole tama
2. Aiseā ua leaga ai le faiga ole isi fale
3. Aiseā ua ulu ai le maile i totonu ole kalone
4. Aiseā ua teti ai mata ole tama
5. What make the hole with the boys pant
6. What spoils the building of the other house
7. Why the dog gets into the drum
8. Why the boy's eyes are opened so wide
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VAEGA E 2. MATE MAI LE ALA E MĀFUA AI ONA TUPU. I laina avanoa o i lalo, ia lisi ai ni mea se tele ua e mate ua ala ai ona tupu lena mea o loo faaalia mai i le ata. E mafai ona e faaaogā ni mea e te mate sa tutupu muamua e soso'o mai ma lena mea o loo tupu mai i le ata, po o se mea foi na tupu i se aso ua leva ona te'a e te mate e māfua ai ona tupu lena mea i le ata. Ia taumafai ona tele ni au mate e tusia i lalo. 'Aua ne'i e fefe e mate.

1. Na aka ona masae le ofu ole tama ua tā'alo
2. Ote matea ua ala ona ïta ilea ina ua li äi
3. E leaga le faiga o lea fale
4. Ua ou iloa nei na fai ese vale
5. The boys pant was torn because he was playing
6. I think he is angry because he did not eat.
7. That house has not been well build
8. I know now it was made by a foolish one
9.
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VAEGA E 3. MATE IA MEA O LE A TUPU MAI AI. I laina avanoa o i lalo, ia lisi ai ni mea se tele e te masalo o le a tupu pe pogai mai ai e tusa ai ma lena mea o le tupu mai i le ata. E mafai ona e faaogā ni mea o le a pogai mai ai e soso'o ai ma lena mea o i le ata po o ni mea o le a tutupu mai ai pe a tuana'i atu ni aso e tele o i le lumanai. Ia tusia ia tele ni mea etusa ai ma lau matematega. Aua ne'i e fefe e mat

1. Ote matea oleā fusu nei le aualii
2. Ua fefe le isi teine
3. Ole ā tie le mata ole tama
4. Ua ou iloa oleā pefta nei moa
5. Ua ou iloa oleā oti nei le tama
6. E tau ai naifi nei
7. The I think the boys are fighting
8. The other girl is afraid
9. The boys eye will be cut
10. The hens will then be killed.
11. I know that the boy will die now
12. They will now fight with knives.
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VAEGA E 4. MEA E FAALELEI ATILI AI. Ia tusia i lalo ni ala poto ma lelei, [illegible]'e me le uiga ese e mafai ona e mafaufau i ai e sui a'i le faaaogaina o le manuki mea taalo o le a faaali mai, ina ia mafai ona fiafia atili ai tamaiti e taalo i ai ma faaaogā soo ai le manuki mea taalo.

tatalo

1. Ote manäo ia tete le manuki ia lelei ile*
2. E fiafia tamaiti e tàali ile manuki
3. Ote le fiafia peā leài se manuki
4. E aogā le manuki e fai mai uo.
5. Ole manuki ore manu tupu tele
6. I want the monkey to be large so that it may be good for playing with
7. The children are happy to play with the monkey
8. I am not happy if there is no monkey
9. The monkey is use to become a friend
10. The monkey is the animal which grow bigger
11.
12.
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27.

VAEGA E 5. FAAAOGĀ I ALA E ESE MAI AI. Ia tusia i lalo ni ala eseese, lelei ma maoa'e e mafai ona e mafaufau i ai e faaaogāina ai lenei manuki mea taalo i se isi tulaga e ese mai ai nai lona faaaogaina faalemea taalo.

1. E aoga le manuki e fesoasoani i tagata
2. E aoga fāi tui ai pine e tau ai
3. E aoga foi i mea ole aiga e fai.
4. The monkey is use to help the people
5. It is also use to keep the pins with
6. It is used also for the families work
7.
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VAEGA E 6. O MEA E TUTUPU MAI AI. I laina avanoa o i lalo ia tusi ai uma n
mea o loo e mafaufau i ai o le a mafai ona tutupu mai ai i nei mea taitasi u
tā'ua i lalo.

A. Po o le a le mea e tupu mai pe afai e liua tagata i tino le vaaia (invisible) e tusa ai ma e latou mana'oga?

1. O leā fefe uma tagata
2. Oleā le iloa se tino o le tagata
3. All people will be afraided
4. The body of a man will be cannot seen.
5.
6.
7.
8.

B. Po o le a le mea e tupu mai pe afai o le a viliina se pū e ati i le lalolagi?

1. O leā àtí uma le lalolagi
2. Oleā
3. All the world will die
4. will
5.
6.
7.
8.

C. Po o le a le mea e tupu mai pe afai o le a malamalama e tagata i le gagana a manu felelei ma isi manu?

manu
↑
gagana

1. O leā le toe iloa se atua pē tautala le ↑
2. The God will be never known of the people
3. speaks with the birds language.
4.
5.
6.
7.
8.

5. West German (Berlin) Group

Sprachliche Aufgaben zum Schoepferischen Denken

Form VA

Name: Ellen Meyer Datum: 1.3.61

Schuljahr: 6 Klasse: 6 G Lehrer(in): [illegible] Schule: 8. Grdsch.

Was moechtest du einmal werden? Bankangestellte

Einfuehrung: In diesem Heft findet ihr Aufgaben besonderer Art. Ihr sollt eure Phantasie benutzen und euch neue Ideen ausdenken. Es gibt hierbei keine richtigen oder falschen Loesungen wie z.B. bei einer Rechenaufgabe. Wir moechten, dass ihr euch so viele neue Ideen einfallen lasst wie ihr koennt. Versucht, ungewoehnliche, interessante und kluge Ideen herauszufinden, solche auf die kein anderer in der Klasse kommt.

Ihr werdet sechs Aufgaben bekommen. Jede wird nach Zeit bearbeitet. Also verschwendet keine Zeit. Arbeitet so schnell wie moeglich, doch nicht hastig. Wenn euch nichts mehr einfaellt, und die Zeit ist noch nichtum, dann wartet ruhig, bis ich euch die naechste Aufgabe gebe.

BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
September 1960

Aufgabe 1. Fragt und ratet. Die ersten drei Aufgaben sollt ihr mit Hilfe eines Bildes loesen, das ich euch zeige. Die erste Aufgabe wird euch Gelegenheit geben zu zeigen, ob ihr viele Fragen stellen koennt. Schreibt hier unten auf die Linien alle Fragen, die euch zu den Dingen einfallen, die ihr auf dem Bilde seht. Stellt all die Fragen, die notwendig sind, um zu verstehen, was auf dem Bilde geschieht. Stellt keine Fragen, die durch blosses Anschauen des Bildes beantwortet werden koennen.

1. Fällt der Junge in das Wasser?
2. Holt er die Katze heraus?
3. Warum sitzt ein Vogel auf dem Dach?
4. Wieso schlägt das Mädchen die Hände über dem
5. Kopf zusammen?
6. Warum steckt der Junge seine Bauch heraus?
7. Wieso ist das Bild bunt?
8. Warum sind ausgerechnet Kinder auf dem Bild?
9. Hat die Mutter dem Jungen die Hose geflickt?
10. Wieso trägt der Junge eine Brille?
11. ______
12. ______
13. ______
14. ______
15. ______
16. ______
17. ______
18. ______
19. ______
20. ______
21. ______
22. ______
23. ______
24. ______
25. ______

Aufgabe 2. Ratet die Ursachen. Betrachtet das Bild genau. Dann schreibt unten auf die Linien so viele moegliche Dinge auf, die zu der Handlung gefuehrt haben koennten. Ihr koennt aufschreiben, was gerade vor dem Ereignis geschehen sein mag oder lange Zeit davor. Es muss aber mit dem Geschehen auf dem Bild zusammenhaengen. Schreibt so viele Vermutungen auf wie ihr koennt. Habt keine Angst zu raten.

1. Die Kinder ha[illegible] di[illegible] [illegible] herumge[illegible].
2. Die Mutter hat die Hose geflickt.
3. Das Wasser soll geholt werden.
4. Die Kinder verabreden sich.
5. Der Junge ist beleidigt.
6. Ein anderer Junge hat sich die Hose zerrissen.
7. Das Mädchen hat lange Sachen an.
8. Der Vogel freut sich, daß die Katze ihn
9. nicht fangen kann.
10. Die Katze war vorher weiß.
11. Das Kind hat die Katze gerettet.
12.
13.
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Aufgabe 3. Ratet die Folgen. Welche Folgen koennte das Geschehen auf dem Bilde haben? Denkt an Dinge, die gleich hinterher oder an Dinge, die nach langer Zeit geschehen koennten. Schreibt wieder auf die Linien alle Moeglichkeiten auf, die euch einfallen. Habt keine Angst zu raten.

1. Die Katze [illegible].
2. Der Junge [illegible] in den Brunnen gefallen.
3. Der andere Junge holt Hilfe.
4. Mutter holt das Wasser.
5. Das Mädchen nimmt die Katze in den Arm.
6. Die Kinder erschrecken.
7. Die Blumen werden verblühen.
8. Die Hühner werden Eier legen.
9.
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Aufgabe 4. Erzeugnisverbesserung. Denkt euch die kluegsten, interessantesten und aussergewoehnlichsten Moeglichkeiten aus und zwar dafuer: Veraendert den gezeigten Spielzeughund so, dass es Kindern mehr Spass macht, damit zu spielen. Schreibt eure Vorschlaege wieder hier unten auf.

1. Die Beine nicht so plumpig 4
2. Nase nicht so hoch 1
3. Fell dunkler 0
4. Schwanz länger 0
5. Der Hund müßte beweglich sein 0
6. Die Zunge müßte rein 2
7. Ein Halsband, Maulkorb und Leine müßte er haben 1
8. Der Stoff dürfte nicht schmutzig werden 2
9. Es muß schnell gereinigt werden 4
10.
11.
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Aufgabe 5. Ungewoehnliche Verwendungen. Dieser Hund koennte auch zu etwas anderem als nur zum Spielen verwendet werden. Denkt euch wieder die kluegsten, die interessantesten und ungewoehnlichsten Verwendungen fuer diesen Spielzueghund aus. Schreibt wieder auf die Linien alle moeglichen Verwendungen auf, die euch einfallen.

1. Zur Verzierung auf das Sofa setzen
2. Als Zeitungsbehälter benutzen
3. Brezeln auf die Nase hängen
4. Man möchte mit ihm ausgehen
5. ________
6. ________
7. ________
8. ________
9. ________
10. ________
11. ________
12. ________
13. ________
14. ________
15. ________
16. ________
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22. ________
23. ________
24. ________
25. ________

Aufgabe 6. Folgen. Schreibt unten fuer jedes Ereignis und jede Bedingung alle nur denkbar moeglichen Folgen auf.

A. Was wuerde geschehen, wenn sich die Menschen unsichtbar machen koennten, wann immer sie wollten?

1. Man könnte sich verdrücken
2. Man könnte besser Versteckspielen
3. Man würde sich immer stoßen
4. Man könnte den Anderen ärgern
5. Man könnte überall Scherze machen,
6. ohne daß man gesehen wird
7.
8.

B. Was wuerde geschehen, wenn man ein Loch durch die Erde bohren koennte?

1. Man würde durchfallen
2. Man würde plötzlich schwitzen oder frieren
3. Man würde eventuell wilden Tieren begegnen
4.
5.
6.
7.
8.

C. Was wuerde geschehen, wenn die Menschen die Sprache der Voegel und Tiere verstehen koennten?

1. Man könnte sich untereinander verstehen
2. Man könnte sich mit den Tieren unterhalten
3.
4.
5.
6.
7.
8.

6. NORWEGIAN VERSION

SKJEMA NVA

Navn: ..Gro...Kvebak........................ Dato: ....

Født: .18/2.19?. Klasse: ..5... Skole: ...[illegible]... Lærer: ...[illegible]dal.

RETTLEDNING: I dette lille heftet skal du få gjøre noe interessant og morsomt. Alt det du skal gjøre vil gi deg en sjanse til å bruke fantasien og til å være oppfinnsom. Vi vil at du skal finne på så mye som mulig i alle oppgavene. Vi vil også at du skal prøve å komme på noe sjeldent og interessant, noe som du tror ingen andre i klassen vil komme på. Prøv om du kan bygge videre og videre på det du tenkte på først og få med så mange ting som mulig.

Du får en bestemt tid til hver av disse oppgavene, så prøv å nytte tiden godt. Arbeid fort, men ikke så fort at du slurver. Hvis du ikke kan komme på mer før tiden er ute, så bare sitt og vent til jeg sier fra at du kan bla om til neste side.

Bry deg ikke om hva som står skrevet under her. Bla om til neste side når jeg gir beskjed.

++

BUREAU OF EDUCATIONAL RESEARCH
University of Minnesota
1960

OPPGÅVE 1. SPØRJA.

Først skal du skriva ned alle dei spørsmål du kan koma på om det du ser på biletet. Lag spørsmål om det eine eller det andre, om alt du ser og om dei ting som skjer på biletet. Spør ikkje om ting som du kan svara på berre ved å sjå på biletet. T.d.: Du kan seia berre ved å sjå på biletet at guten med den raude buksa har ein lapp på buksa si, men du kan ikkje seia kven det er som har lappa buksa hans, eller korleis det bar til at han fekk hol i buksa si.

1. Kven er det som har kjøpt hatten til jenta.
2. Kven er det som har kjøpt sjorta til guten.
3. Kven er det som har planta tre der.
4. Kvifor slepper han katten nedi brunne
5. Kvifor skal brynne sta der
6. Kvifor går hønene der
7. Kvifor
8. 1. Who did buy the girl the hat
9. 2. Who did buy the boy the skirt.
10. 3. Who planted the trees there
11. 4 Why does he drop the cat down in the
12. well
13. 5. Why does the well stay there
(What's the reason it's standing there)
14.
15. 6. Why is the hens walking around there.
16.
17.
18.
19.
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24.

OPPGÅVE 2. GISSA ÅRSAKER.

På denne sida vil vi at du skal gissa kva som kan ha hendt før detto skjer som du no ser på biletet. Kva hende før detto du ser på biletet? Kva var det som gjorde at det hende det du ser på biletet? Gissa på mange ting som du trur kan ha ført til det du ser på biletet. Ingen av oss veit kva som gjorde eller som førte til at detto hende, alt du kan gjera, er å gissa. Ver ikkje redd for å bruka fantasien når du gissar.

1. Har katten klora guten
2. Kvifor er jenta så redd
3. Har katten ti ein fugl
4. Har katta ti ein hane
5. Er katten til guten som er så sint
6. Har di to gutane sl.
7.
8. 1. Has the cat scratched the boy.
9. 2. Why is the girl so afraid.
10. 3. Has the cat taken a bird
11. 4 Has the cat taken a hen.
12. 5. Does the cat beling to the boy who is
13. So angry.
14.
15. 6. Has the two boys - - -
16.
17.
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OPPGÅVE 3. GISSA KVA SOM KAN SKJE.

Her vil vi at du skal skriva ned alle moglege ting som du trur kan henda etter det som no skjer på biletet her. Kva skjer vidare, trur du? Kva vil skje i framtida, kanskje mange dagar eller mange år etterpå, på grunn av det som her skjer? Kva kan dette føra til, trur du? Prøv om du kan gissa på mange ting. Ver ikkje redd for å bruka fantasien.

1. Blir katten ai sleppt
2. Blir heime sjå ~~[illegible]~~ borna sinte
3. For borna ris heime
4. Blir katten dau
5. Blir katten våt
6. Blir katten redd
7. Blir katten sint
8. Klora katten ~~borna~~ guten.
9. Blir katten oppdregen alt
10.
11.
12. 1. Does the cat get dropped
13. 2. Do they get angry in the childrens
14. houses.
15. 3. Do they get a spanking.
16. 4. Does the cat die.
17. 5. Does the cat get wet.
18. 6 Does the cat become afraid
19. 7. Did the cat scratch the boy.
20. 8 Does the cat already get pulled out
21.
22.
23.
24.

OPPGÅVE 4. FORANDRA EIN TING TIL DET BETRE.

No skal vi sjå kor flink du er til å finna ut korleis du kan forandra ein ting til det betre. Sjå nøye på denne apekatten. No skal du prøva å finna på mange ulike måtar å forandra denne apekatten på slik at born vil ha endå meir moro av å leika med han. Prøv om du kan koma på sjeldne, uvanlege, fikse og interessante forandringar. Du skal ikkje bry deg om at det kan bli dyrt å få til dei forandringane du tenkjer på, eller om det er råd å få forandringane til.

1. Han skulla skrike
2. Han skulla hoppa
3. Det skulla lyst i auga
4. Han skulle rent oppover en vegg
5. Han skulla ete
6. Han skulla bada
7.
8. 1. He should cry.
9. 2. He should jump
10. 3. It should shine in his eyes
11. 4 He should be able to run up a wall
12. 5. He should eat
13. 6 He should bathe.
14.
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24.

OPPGÅVE 5. UVANLEGE MÅTAR Å BRUKA TING PÅ.

Prøv om du kan koma på noko anna du kan bruka denne apekatten til enn berre eit leåkøty. Prøv om du kan finna på interessante, sjeldne og uvanlege måtar å bruka denne apekatten på. Du kan bruka apekatten som han er no, eller du kan forandra han som du vil. Du kan t.d. ha apekatten som han er no og bruka han til ei nålepute. Du kan og laga han mykje større og sterkare slik at du kan bruka han til å sitja eller rida på.

1. Han skulle stå til stol.
2. Han kan vera til puff
3. Han kan vera levande
4.
5. 1. He should stay as a chair
6. 2. He could be used as decoration
7. 3. He could be alive.
8.
9.
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OPPGÅVE 6. KVA VIL SKJE?

I denne siste oppgåva står det tre setningar A, B og C, som fortel om ting som ikkje er verkelege, som ikkje eskisterer og som truleg aldri vil skje. Dei fortel om noko usannsynleg.
Vi vil likevel gjerne at du skal prøva å bruka fantasien din til å gissa på kva som kunne skje dersom det vart verkeleg det som står i desse tre setningane. Ingen veit kva som ville skje, vi kan berre gissa. Ver ikkje redd for å skriva ned kva du trur kan skje.

A. Kva ville skje dersom menneska kunne gjera seg usynlege når dei ville?

1. Det går gått gjeke ikke
2.
3. It's not possible
4.
5.
6.
7.

B. Kva ville skje dersom vi kunne bora eit hol gjennom jordkula?

1. Kom attende - come back
2.
3.
4.
5.
6.
7.

C. Kva ville skje dersom fuglespråk og dyrespråk kunne bli forstått av menneska?

1.
2.
3.
4.
5.
6.
7.

7. Indian (New Delhi) Version

MINNESOTA TESTS OF CREATIVE THINKING

(FORM VA)

तिथि……………………

नाम……………………………… लिंग ……………………… कक्षा………………………

स्कूल……………………………… आयु ………………………………………………

आप कितने भाई बहन हैं ?……………………… भाई और बहन………………………

आपके पिता किस प्रकार का कार्य करते हैं ?……………………………………………

आपकी माता किस प्रकार का कार्य करती हैं ?……………………………………………

आप बड़े होकर किस प्रकार का कार्य करना चाहेंगे ?……………………………………

निर्देश :—*इस पुस्तिका में आपको बहुत से रुचिकर कार्य करने हैं। इनसे आपको अपनी कल्पना के प्रयोग करने का तथा नए विचारों को प्रकट करने का अवसर मिलेगा। साधारणतया आपके उत्तरों को "गलत" या "सही" मानकर निर्णय नहीं किया जाएगा। हमारी इच्छा है कि आप यथा सम्भव अधिक से अधिक कल्पनाएँ और विचार प्रकट करें और यह कल्पनाएँ जितनी अनोखी (unusual) रुचिपूर्ण (interesting) और चतुराई पूर्ण (clever ideas) हो सकें उतना ही अच्छा है। ऐसी कल्पना करें जो आपकी कक्षा के अन्य लोग न कर पाएं।

*प्रत्येक कार्य के लिए समय की सीमा निश्चित है। अतः आप समय नष्ट न करें। शीघ्रता पूर्वक काम कीजिए।

*निश्चित समय के पहले ही यदि आप अपना एक अभ्यास समाप्त करते हैं तो भी आप दूसरा पृष्ठ न देखें जब तक कि आपको ऐसा करने के लिए आदेश न दिया जाए।

*इस पृष्ठ के निम्न भाग की ओर आप बिल्कुल ध्यान न दें। जब मैं संकेत दूँ तो आप दूसरा पृष्ठ उलटें।

प्रथम-भाग

प्रथम अभ्यास :

पूछिए (Ask):—

प्रथम तीन अभ्यास एक चित्र पर आधारित हैं जो कि परदे पर दिखाया जायगा। पहले कार्य से आपको यह दिखाने का अवसर मिलेगा कि आप अधिक से अधिक प्रश्न पूछने में कितने कुशल (लायक) हैं। दिखाए गए चित्र में देखी गयी वस्तुओं के विषय में आप जितने प्रश्न सोच सकते हैं; उन्हें नीचे के खाली स्थान में लिखें। वे प्रश्न पूछें जो इस चित्र की घटनाओं को समझने के लिए आपको आवश्यक लगते हों। ऐसे प्रश्न न पूछें जिसका उत्तर केवल चित्र को देखकर दिया जा सकता हो।

1. वह लड़का सीढ़ी पर क्यों चढ़ा है?
2. लड़की ने गुड़िया क्यों उठाई है?
3. वह लड़का क्यों सो रहा है?
4. उसके पास टोपी क्यों पड़ी है?
5. उसने बाजा क्यों रखा है?
6. वह बच्चा उसे लाठी क्यों मार रहा है?
7. वह पहाड़ पर क्यों चढ़ा है?
8. वह लड़की यहाँ पर क्यों खड़ी है?
9.
10. Why has the boy climbed up the ladder?
11. Why is the girl carrying a doll?
12. Why is the boy asleep?
13. Why is the cap near him?
14. Why ~~he~~ does he have a musical
15. instrument?
16. Why is that boy hitting him with a staff?
17. Why has he climbed up a hill?
18. Why is the girl standing there?

दूसरा-अभ्यास

कारणों का अनुमान (Guess Causes)

चित्र में हुई घटनाओं का कारण बन सकने वाली अधिक से अधिक वस्तुओं की सूची नीचे दिए गए स्थान पर लिखें। आप वर्तमान घटना से ठीक पहले घटने वाली बातों का उल्लेख कर सकते हैं। अथवा उन सभी चीजों का उल्लेख कर सकते हैं—जिनका इस घटना पर बहुत पहले प्रभाव पड़ा हो। आप अधिक से अधिक सम्भावनाओं की कल्पना करें। आप अधिक से अधिक कल्पना करने से न हिचकें।

1. यह बच्चे घर से खेलने आए थे
2. रास्ता भूल कर यह जंगल में पहुंच गये है।
3. खेलते २ पहाड़ के पास आ गये। इन्हें अपने घर
4. का रास्ता भूल गया है
5.
6. The children came from home to play.
7. They lost their way and came to this forest
8. In course of playing the came to this hill
9. They have lost their way home
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.

तीसरा-अभ्यास

परिणामों का अनुमान (Guess Consequences)

चित्र में होने वाली घटनाओं से अधिक से अधिक क्या हो सकने की सम्भावना हो सकती है वे सब नीचे लिखें। आप चित्र में हो सकने वाली घटनाओं की वजह से इसके तुरन्त बाद या बहुत दिनों बाद हो सकने वाली बातों का उल्लेख कर सकते हैं। अधिक से अधिक सम्भावनाओं की कल्पना कीजिए। ऐसा करने में बिल्कुल न हिचकें।

1. यह घर नहीं पंहुचेगे तो उनके घरवाले
2. इन्हे ढूंढेगे जब यह उन्हे मिल जाएगे तो यह
3. कहेगे कि हमे रास्ता गये भूल गया था इसी
4. लिये हमे देरी हो गई है।
5.
6. If they do not reach home then their
7. folks will look for them
8. They will find them
9. These children will tell them that they had
10. lost their way, and that was why they
11. stayed away so late
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.

कल्पना-परीक्षण

[द्वितीय भाग]

चौथा-अभ्यास

वस्तु संशोधन (Product Improvement)

आपको जो कुत्ता (खिलौना) दिया गया है इसे और भी अच्छा बनाना है—जिससे कि आपके सुझावों के बाद बनाए गये कुत्ते के साथ खेल कर बच्चे और भी अधिक आनन्द (मजा) प्राप्त कर सकें। आप सबसे अधिक बुद्धिमत्ता पूर्ण (cleverest) सबसे ज्यादा मजेदार (most interesting) और सबसे ज्यादा अनोखे (most unusual) ढंग या तरीके (जिससे यह कुत्ता सुधारा जा सकता है) नीचे लिखिए।

1. इस के कान लम्बे कर दिये जाए ।
2. इसका चेहरा बदल दिया जाए ।
3. इस के पैर सीधे होने चाहिये ।
4. इसकी आँखें ठीक होनी चाहिये ।
5. इसकी पूंछ सीधी होनी चाहिये ।
6. इस के गले मे जंजीर डाल दी जावे ।
7. इस की टोपी सीधी कर दी जाए ।
8. इसका सिर छोटा कर दिया जाए !
9.
10. ~~Its~~ Make its ears longer
11. Change its face 4
12. straighten Straighten its feet 4
13. Set its eyes right 0
14. straighten Straighten its tail 4
15. Put a chain round its neck 3
16. straighten Straighten its cap 9
17. Make its head smaller. 7
18.
19.
20.
21.
22.
23.
24.
25.

पाँचवां-अभ्यास

अनोखे प्रयोग (Unusual uses)

नीचे के खाली स्थानों में सबसे अधिक बुद्धिमत्ता पूर्ण (cleverest) सबसे ज्यादा मजेदार (most interesting) और सबसे ज्यादा अनोखे (most unusual) प्रयोगों या इस्तेमालों की सूची दीजिए—जिनसे कि इस कुत्ते को खेल या मनोरंजन के अलावा अन्य कामों में लाया जा सकता है।

1. वह कुत्ता घरों मे पाला जाता है।
2. जब कोई आता है तो भौंकता है।
3. छोटे बच्चे इससे खेलते है।
4. मै इसे अपनी अलमारी मे सजाऊगी
5.
6. The dog is brought up at homes
7. When some one comes it barks
4
8. Little children play with it.
9. I will decorate my cupboard with it
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24.
25.

छठवाँ-अभ्यास

परिणाम (Consequences)

नीचे कुछ असम्भव घटनाओं (improbable events) का उल्लेख किया गया है जो हो नहीं सकतीं फिर भी यह मानकर चलिए कि अगर यह हो जायं तो उनके क्या-क्या परिणाम हो सकते हैं। इनके सच होने की वजह से क्या-क्या परिणाम हो सकते हैं। उनकी सारी सम्भावनाओं (possible consequences) की सूची बनाइए।

(अ) अगर आदमी जब चाहे ऐसा रूप बनाले कि उसे कोई देख न सके (invisible) तो क्या-क्या होगा ?

1. चोर सामान [illegible] चुरा कर ले जाएं
2.
3. People will steal things from other people's
4. houses
5.
6.

(ब) अगर पृथ्वी के आर-पार छेद बनाया जा सके तो क्या होगा ?

1. कई लोग उसके अन्दर गिर कर मर जाएंगे
2.
3. People will fall into it and die
4.
5.
6.

(स) अगर आदमी पशु-पक्षियों (birds and animals) की भाषा भी समझने लग जांय तो क्या होगा ?

1.
2.
3.
4.
5.
6.

APPENDIX C

YOUR CLASS QUESTIONNAIRE

SCHOOL:______________________________LOCATION:____________________________

(Town) State/Country)

TEACHER:_____________________________GRADE OR GRADES:____________________

I. THE CLASS

1. Size:

Total number of students__________.

Number of Boys__________.

Number of Girls__________.

2. Age: (If not known, please estimate.) Age Range: (If more than one year)

a. Average age, class__________. b. ____ to ____.

Average age, Boys__________. ____ to ____.

Average age, Girls__________. ____ to ____.

3. Seating Arrangement:

a. By age: (If 2b. applies, otherwise ignore.)

Predominant age grouping__________.

No noticeable age grouping__________.

b. By sex:

Distinct (boy vs. girl) sex grouping__________.

No noticeable sex grouping__________.

c. Other: (Specify: Is the class seating arrangement indiscriminate or regulated? Does anyone determine the seating arrangement?)

____

____

****

Cross-Cultural Studies of Creativity
BUREAU OF EDUCATIONAL RESEARCH
College of Education
UNIVERSITY OF MINNESOTA
March 1961

4. **Student Participation:**

Place an "x" anywhere on the scale below to show, in your estimation, the amount of individual vs. group participation during class work.

a. Boys:

Strong	Medium	Mild	Neutral	Mild	Medium	Strong

(Tendency to work alone)	(Tendency to work together)
Explanation of terms:	Explanation of terms:
Strong: Almost always work alone.	Strong: Almost always work together.
Medium: Usually work alone.	Medium: Usually work alone together.
Mild: Work alone somewhat more than together.	Mild: Work together somewhat more than alone.
Neutral: Work alone about as often as work together.	Neutral: Work together about as often as work alone.

b. Girls: (Do the same as for 4a.)

Strong	Medium	Mild	Neutral	Mild	Medium	Strong

c. Please comment freely on the nature and extent of student participation during class work. Do the students work easily and readily together, or not? Do you notice the formation of any definite cliques of students, by age or sex? If so, describe.

5. **Student Interaction:**

Place an "x" anywhere on the scale below to show, in your estimation, the extent of sex (boy vs. girl) grouping during class work.

Low Mild Medium Strong High

Explanation of terms:

Low: No sex grouping
Mild: About 1/4th of class grouped by sex.
Medium: About 1/2 of class grouped by sex.
Strong: About 3/4th of class grouped by sex.
High: Complete sex grouping.

II. THE TEST

1. **Test Administration:**

Who administered the test? The regular class teacher__________.

Other (specify)__________.

How many assistants (if any) were used for the individual testing?

____

____
(explain: who and how many:)

It is of vital importance that we know all about the test situation. In view of this, in what way (if any) did you find it necessary to deviate from the test instructions? Please explain.

____

____

____

____

____

____

____
If necessary, write on other side.)

2. Student Test Experience

a. Kinds of Tests (check each type of test which has been administered to all or a majority of the pupils in this class)

___Individual intelligence test

___Group intelligence test

___Standardized reading test

___Standardized achievement tests in other areas

___Musical aptitude tests

___Other aptitude tests (Specify:____________________)

___Experimental tests (Specify type:____________________)

a. Nature and Type of Teacher-Made Tests

___No teacher-made tests given

(1) Written Tests (check each type which has been administered this term)

___Multiple-Choice

___True-False

___Completion of Blanks (memory)

___Essay (describing, comparing, contrasting, discussing)

___Creative, Multiple Response

___Decision-Making (supporting decision)

___Other (Specify:____________________________)

(2) Oral Tests

___Individual Recitation Frequency: About ___ times per week

___Group Recitation Frequency: About ___ times per week

___Experiments Example:__________________________

___Demonstration Example:__________________________

c. About how many times has this class been given tests under time pressure during this term (year)?____________

3. **Student Drawing Experience:**

Do boys and girls have essentially the same or markedly different drawing experience?
If same, check _____.
If different, describe: In what way is it different? Compare the drawing experience of boys and girls:

____

____

____

____

____

Who teaches art or drawing?

Regular teacher__________.

Other (specify)____

Describe the nature of art or drawing class work: What is drawn? Do the students choose their own drawing subjects, or are drawing subjects proscribed? In either case, what are the subjects most often drawn?

____

____

____

____

____

4. **Student Attitude toward taking the Creative Thinking Test Battery:**

Place an "x" anywhere on the scale below to show, in your estimation, the general feeling of the students about taking the Test Battery:

Strongly Approve or Enjoy	Approve or Enjoy	Neutral or Undecided	Disapprove or Dislike	Strongly Disapprove or Dislike

Did the boys' attitude toward taking the Test Battery differ in any clearly evident way from the girls'? If so, please explain:

What sorts of things did you observe among the class that have led you to form your conclusions about student attitudes toward taking the Test Battery? Please illustrate:

III. THE SCHOOL

1. Education:

a. List the subjects normally taught to the students of grade ____ in a school year. If a subject is taught to boys only or to girls only, indicate this by checking the appropriate box, marked "boys" or "girls." Also, estimate the average hours per month each student spends in class, for each subject.

Subject	(If Applicable) Boys	Girls	Estimate of Hours per Month
(e.g., woodworking)	X		10
(e.g., sewing)		X	15

b. How long is your school year? Write in the number of:

Months per year ________. What is the ordinary daily class
Days per week ________. schedule?
Hours per day ________.

A.M. ______ to ______ P.M. ______ to ______.
(time) (time)

Indicate the language which predominates in daily school instruction i.e., which is spoken more than half the time. Write the number "1" to indicate the primary language, "2" to indicate the secondary language (if any).

Native (specify) ______________ ___
English ______________ ___
Other (specify) ______________ ___

c. Describe the system of grading and promoting students in your school. What are the significant criteria of grading students, of assessing student performance and ability? What standards, of ability and/or performance, guide the promotion of students?

d. What is the attitude of the students toward grades and promotion? Place an "x" anywhere on the scale below to show, in your estimation, the students' attitude:

No Concern (indifferent)	Mild Concern	Medium Concern	Strong Concern	Extreme Concern (anxious)

How do the students ordinarily feel about failing a test? About (if it applies) not graduating? Describe: (How do they react to the situation?)

e. In your estimation, what is the educational philosophy of your school? How is it reflected in the educational policy of the school? Describe the goals and values of the school, so far as they effect the education of the student. What kind of education does the school want to give to the student?

2. The Teachers:

a. Social and educational background: Describe the teacher, with regard to the following:

Age__________. Sex__________. Ethnic origin: Place of birth: ______________________________Race:_______________.

Years of education completed: (circle one)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 More than 16__

Degrees held:__________ _______________ _______________

(degree) (major field) (minor field)

__________ _______________ _______________

b. Teaching Methods:

What is the teacher's method of teaching? Does he use primarily any one approach? (For example, lecture or class discussion; teacher demonstration or class experimentation; group or individual recitation; problem-solving or memorization.) What does he stress in his method of teaching?

What is the teacher's manner of teaching? For example, is he permissive or strict? Formal or informal? Friendly and involved with his student's problems -- or what?

c. Provision for Individual Differences

Are some pupils allowed to work independently of the remainder of the class? Yes____ No____

Are all assignments given uniformly to all pupils? Yes____ No____
Are any exceptions made in the amount or type of work assigned pupils? Yes____ No____

Is required learning and the mastery of assignments stressed to the exclusion of individual preference, interest, etc.? Yes____ No____

To what extent are pupils permitted to ask questions?______________

____

____

d. Discipline

How does the teacher discipline the students? Are disciplinary procedures formal and uniformly followed, or does each teacher work out his own procedure? In any case, what is the nature of the usual disciplinary procedures?

In other words, what sanctions are commonly used to discipline students? How often, on the average, are these sanctions used with regard to a class? Are they directed toward the individual violator or toward the group? In this respect, is the disciplining of boys and girls the same or different? If different, please explain.

____

____

____

____

____

____

____

____

e. Rewards

How does the teacher reward the students? For what are they rewarded? Are rewards standardized, conforming to school regulations, or are they varied, dependent upon the teacher's judgment? Or is both or neither the case? In other words, what is the nature and purpose and occasion for rewarding students? Is the individual or the group rewarded? Are boys and girls rewarded alike? If not, explain.

f. In the experience of the teacher, who seems to work most willingly, boys or girls? Does the teacher encounter any special difficulties in working with one that does not occur in working with the other (sex)? Is one sex easier to work with than the other? Does one appear to learn more rapidly than the other?

Does the teacher inform the students, periodically, of their progress in school? Do they tell them their grades, scores, and the like? Do they learn of their performance individually, or as a group? Does the teacher compare their performance to some standard? If so, what is that standard?

3. The Students

a. How do the students regard their own and other's work in school? Can you say whether or not the student compares himself (his worth and ability) to the others as an individual or as a member of a group?

b. What is the nature of the student-teacher relationship? Are the students emotionally involved or non-involved with their teacher? With whom do they identify while in school? Do the students accept or reject the authority of their teacher? Do they show respect? Are they easy or difficult for the teacher to deal with? Explain.

c. Does the student appear to compete with others for honors? Is there competition between boys and girls for grades and privileges? Is any sort of competition encouraged or supported by the teachers? Do the students engage in contests, of skill and knowledge? If so, please describe:

d. The "Ideal" Pupil

Check each of the characteristics listed below which describes the "ideal" pupil in this class. Double check the five characteristics which are most important. Strike through characteristics which are usually punished or discouraged.

____Adventurous
____Affectionate
____Altruistic
____Considerate of others
____Always asking questions
____Attempts difficult jobs
____Bashful
____Considerate of others
____Critical of others
____Courageous
____Courteous
____Desires to excel
____Determination
____Domineering
____Disturbs class organization
____Emotional
____Emotionally sensitive
____Energetic
____Fault-finding
____Haughty and self-satisfied
____Likes to work alone
____Independent in judgment
____Independent in thinking
____Intuitive
____Industrious
____Does work on time
____Never bored
____Non-conforming
____Negativistic
____Popular, well liked by peers
____Obedient
____Persistent
____Quiet
____Becomes preoccupied with task
____Prefers complex task
____Receptive to ideas of others
____Regresses occasionally (playful, childish)
____Reserved
____Self-assertive
____A self-starter
____Self-confident
____Self-sufficient

____Sense of humor
____Sense of beauty
____Sincere
____Spirited in disagreement
____Strives for distant goals
____Stubborn
____Timid
____Thorough
____Sophisticated
____Unwilling to accept anything on mere say-so
____Willing to accept judgments of authorities
____Visionary
____Versatility
____Willing to take risks
____A good guesser
____Remembers well
____Healthy
____Physically strong
____Curious
____Competitive
____Talkative

APPENDIX D

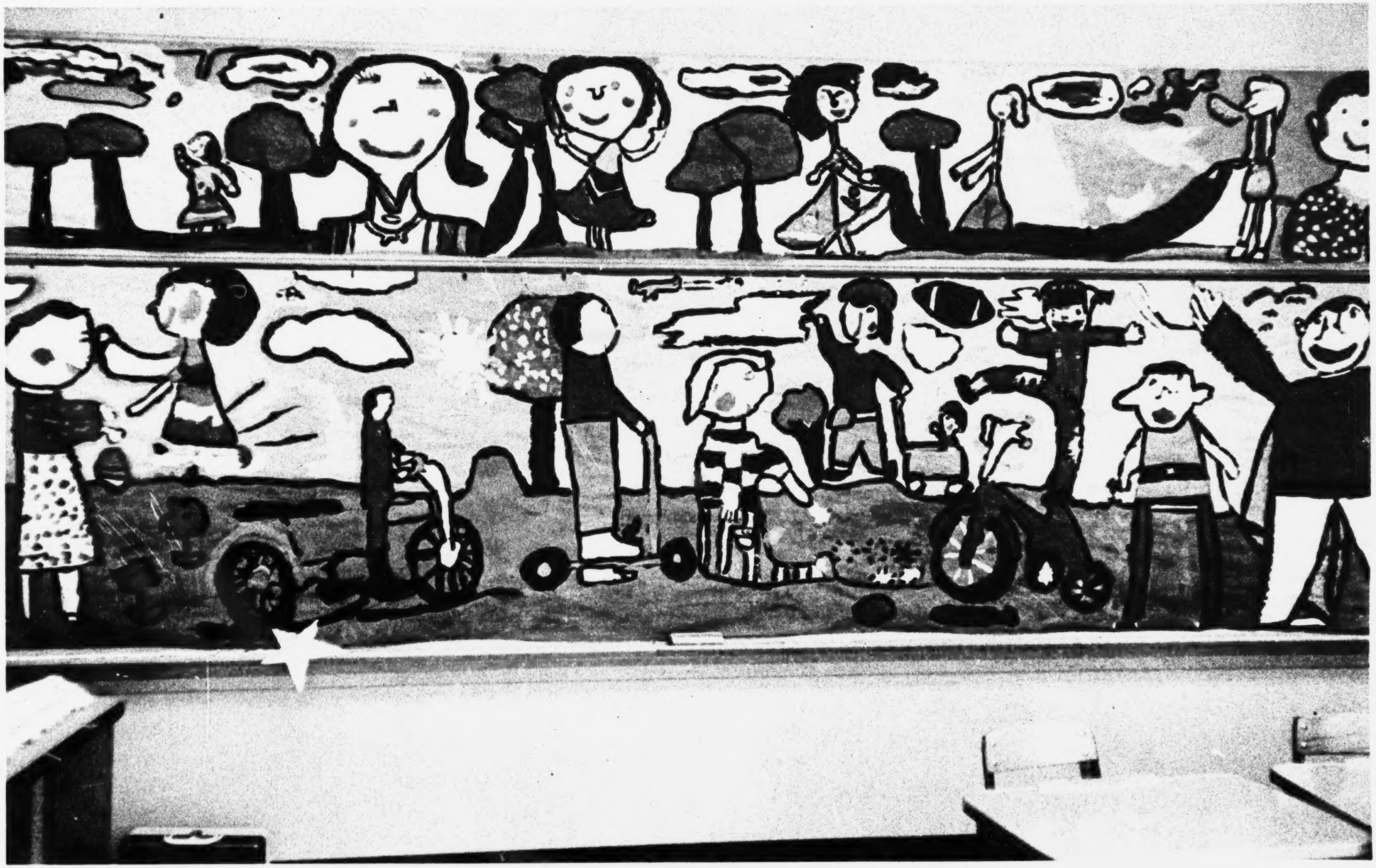
Photographs of Research Sites and Activities

1. Group and Individual Testing in U. S. A. Comparison Group School
2. Mural in First Grade Classroom in U. S. A. Comparison Group School
3. Group Testing in Public School of Longitudinal Study
4. Group Testing in Laboratory School in Longitudinal Study
5. Individual Administration in India
6. Group Administration in India
7. Administration in Rural Village in Western Samoa
8. Administration in Large Village in Western Samoa
9. 8 Grundschule, Kreuzberg District, West Berlin, Germany
10. The Old Schweizerhof Schule, Berlin, West Germany (Now the John F. Kennedy Schule)
11. Picture Used for Tasks 1, 2, and 3, Verbal Creative Thinking Test

    Harrisburg Elementary School, Baldwin County, Georgia

Group and Individual Testing in U. S. A. Comparison Group School

Plate 2



Mural in First Grade Class of U. S. A. Comparison Group School

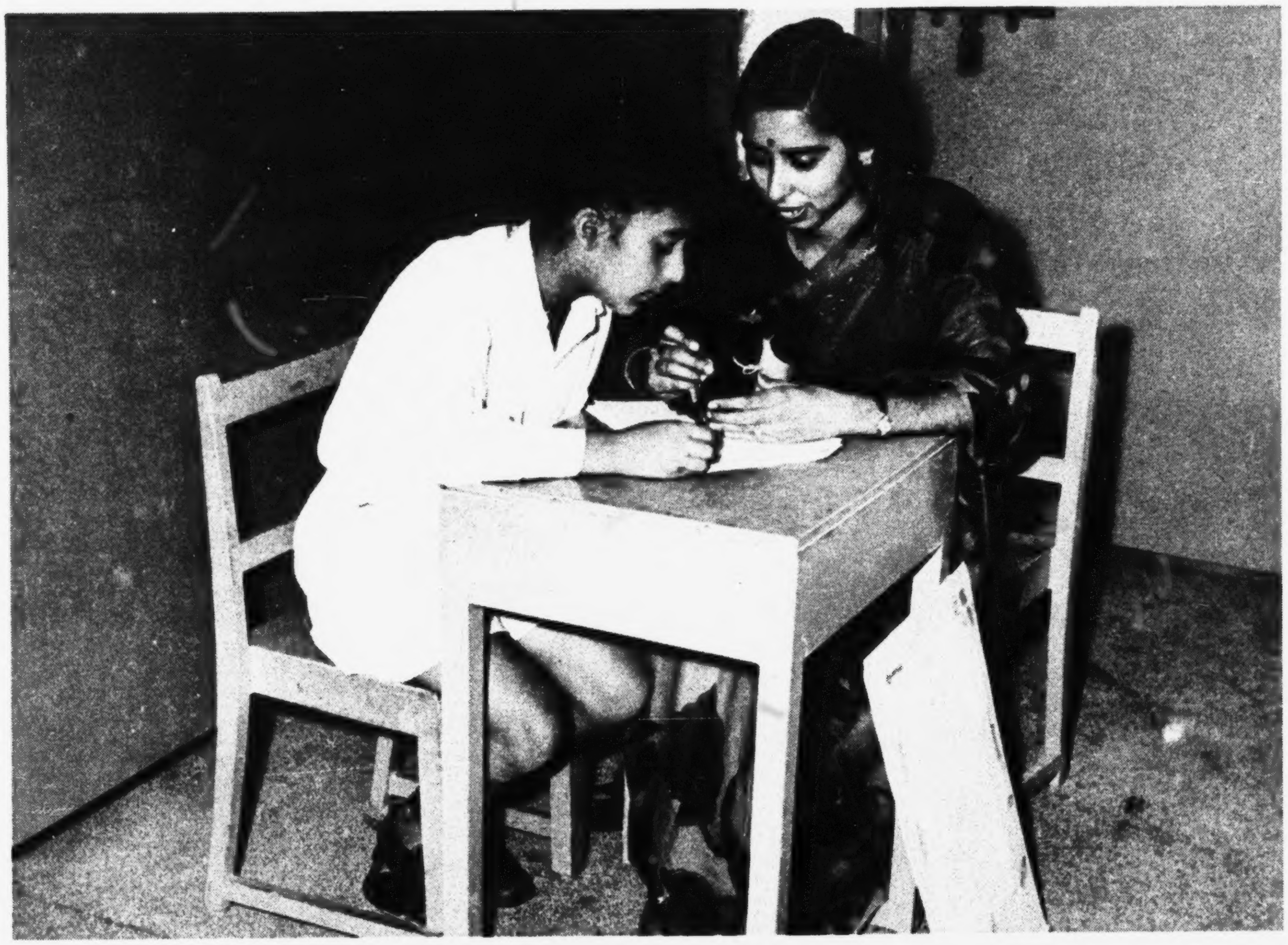
Group Testing in Public School of Longitudinal Study

Plate 3

Group Testing in Laboratory School in Longitudinal Study

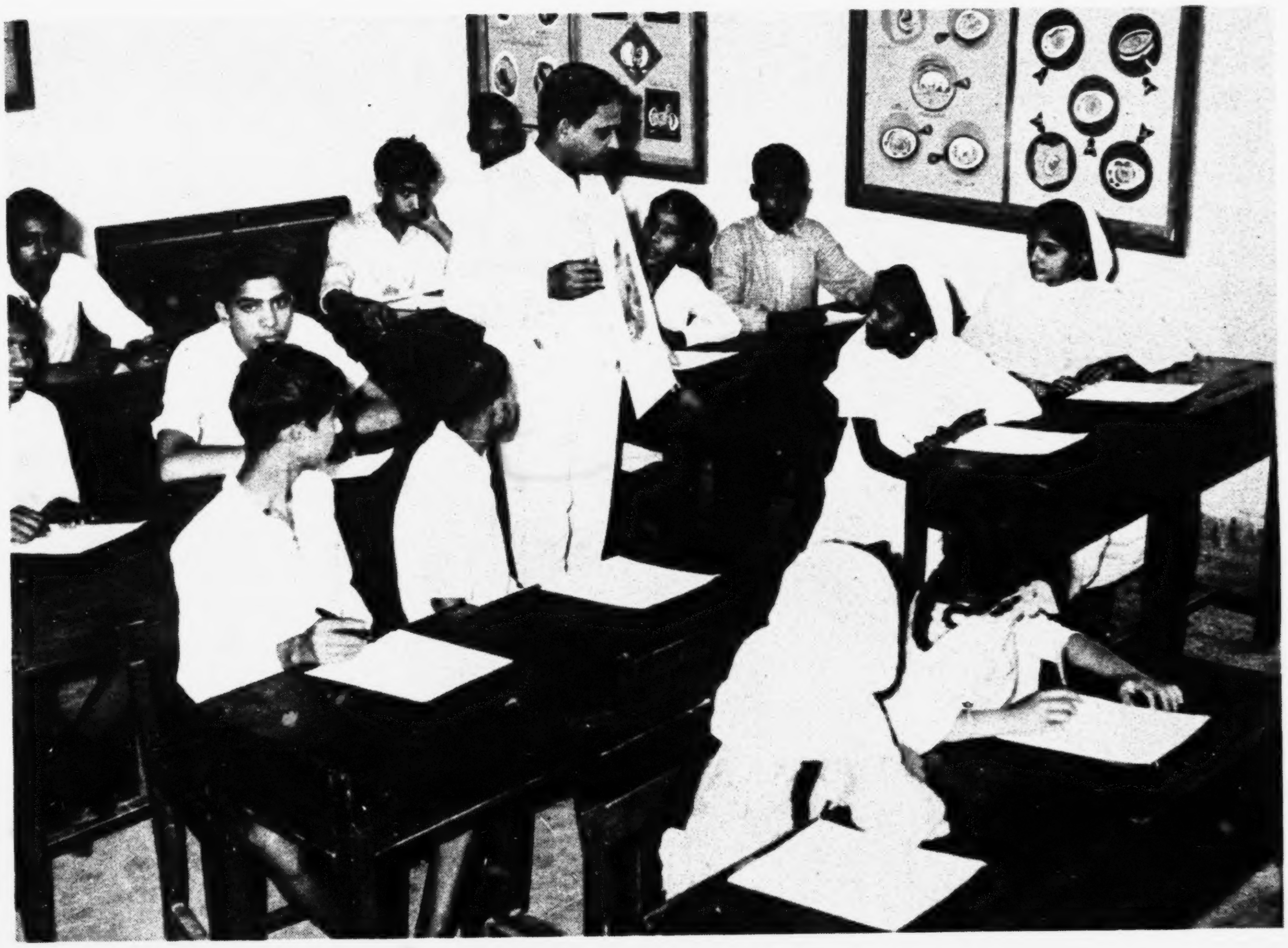
Plate 4

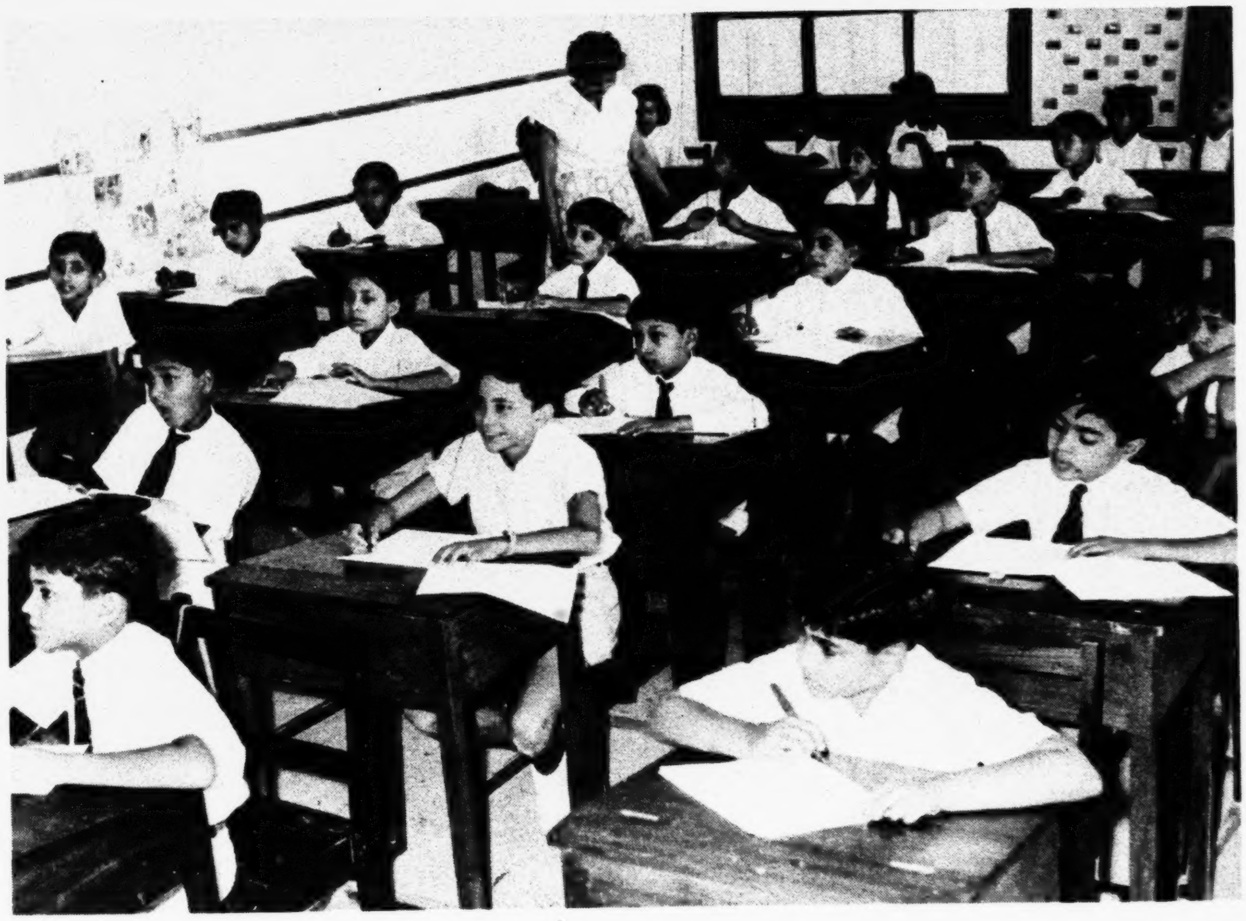
Plate 5



Individual Administration in India

Plate 6





Group Administration Cin India

D-6

Plate 7

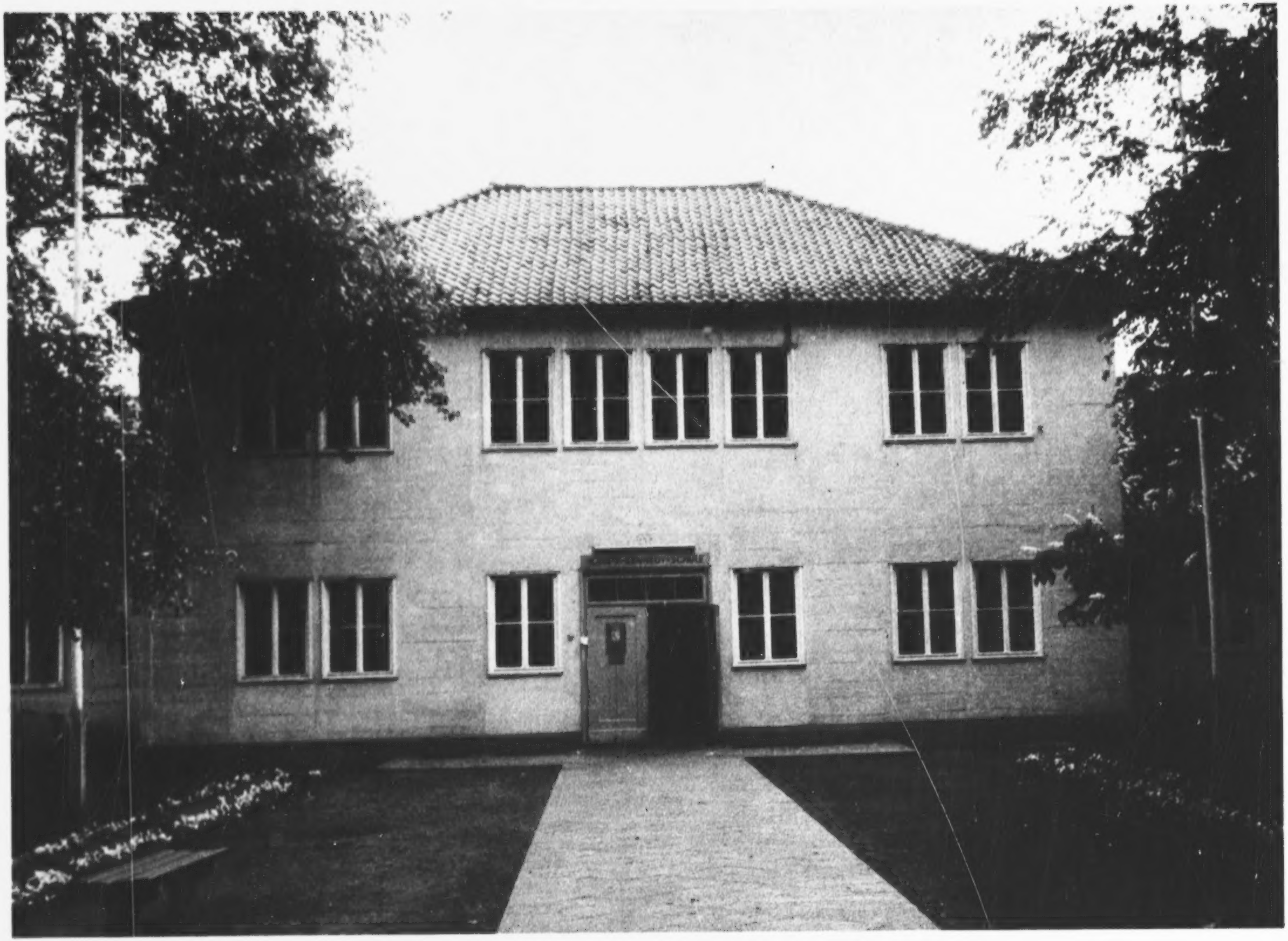
Administration in Rural Village in Western Samoa

Plate 8

Administration in Large Village in Western Samoa

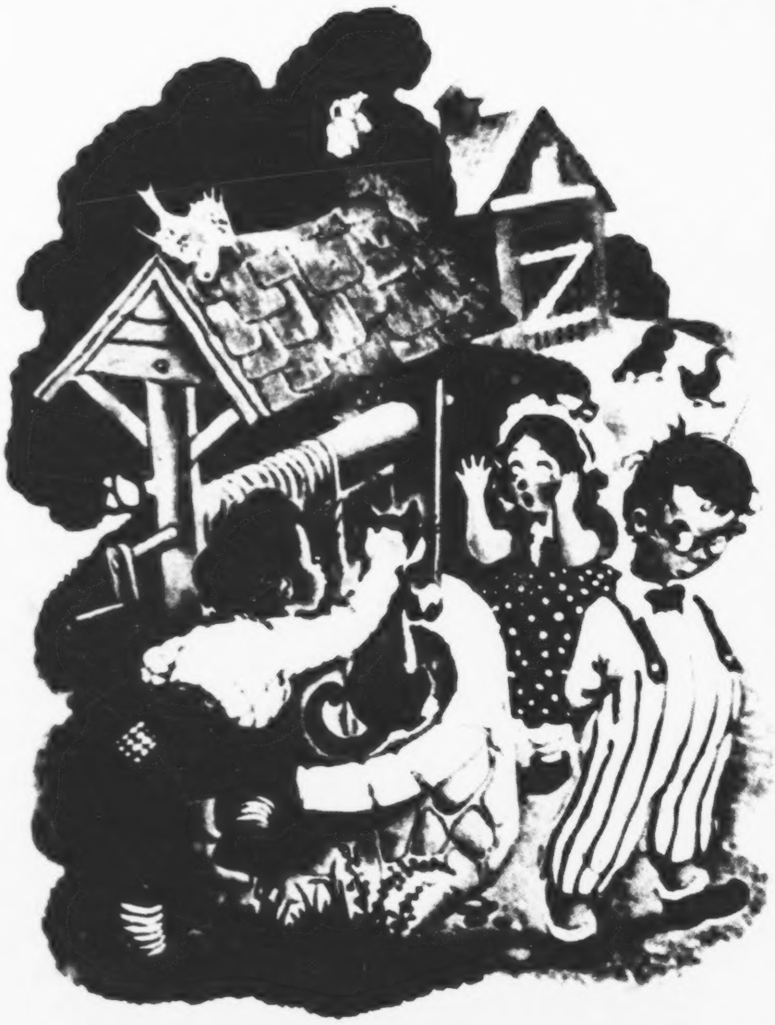
Plate 9

8 Grundschule, Kreuzberg District
West Berlin, Germany

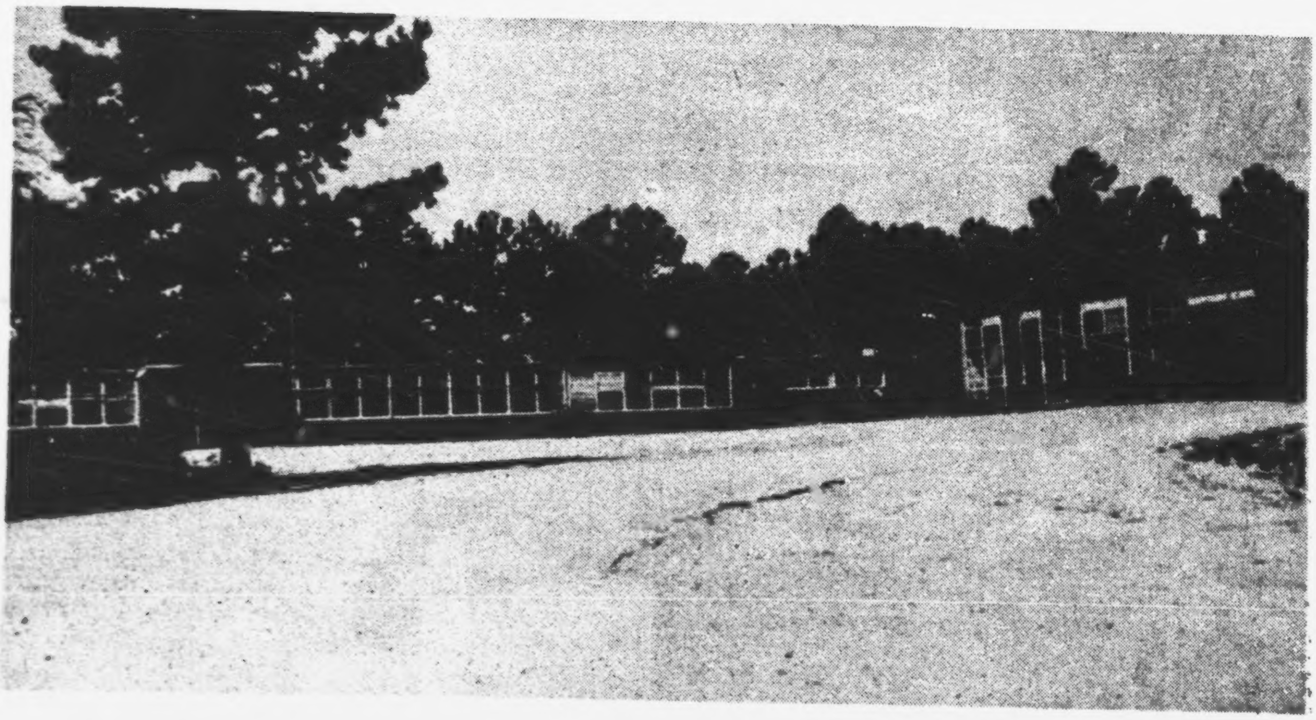


The Old Schweizerhof Schule, Zehlendorf, Berlin, West Germany
(Now the John F. Kennedy Schule)

Plate 11



Picture used for Tasks I, II and III, Verbal Creative Thinking Test. "Ding Dong Bell," Mother Goose Prints, Penn Prints, New York



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